

# Socioeconomics of Brazil's Mega Farms

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**My Borlaug-Ruan Internship Experience**

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The World Food Prize--Borlaug Ruan Intern 2018  
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## Acknowledgements

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Agriculture is both the foundation of the world, and of my childhood. I grew up surrounded by fields in a small farm outside rural town of Benson, Minnesota, with a population of around 3000 people. We are predominantly a farming community receiving most of our income from agricultural production. Because of this, agriculture has had a close interaction with my life from my father who works at Case IH, a manufacturer of agricultural equipment, to my mother who works at Runnings, a farm and fleet store, where I also to work. These influences, great as they were, still couldn't compared to my true passion of Science. My mother tells me, even at the age of 5, I was curious and liked to learn, somehow always getting into trouble as I attempted to understand the world around me. This curiosity was fostered by my siblings, who helped me learn about any topic that I grew curious of.

I began 7th grade, without a specific direction, studying random topics and learning anything I found interesting. My teacher, Ms. Loen took notice and Changed my life by encouraging me to join Future Farmers of America (FFA). She guided me on my first steps to where I am today. Doing this gave my passion for science direction, my scientific appetite ways to be fed, and me a way to still follow in the agricultural foundations of my home town. I took to FFA fast. Algae became my main area of interest. After two years and multiple projects, I learned of The World Food Prize. While attending a science fair in Minneapolis Minnesota, I was introduced to Keegan Kautzky who inspired me to give the Minnesota Youth Institute a try. I signed up with eager enthusiasm and applied my knowledge of algae to write a paper on food security and environmental sustainability in India. In less than a year I had my life changed. I was selected to go to Iowa as a Reperceive of Minnesota for the GYI. Yet after that I had a break with the World

Food Prize that lasted for one year. During this time, I studied college level courses in the fields of chemistry and biology.

My interest in agricultural science and my studies in college level chemistry and biology then led me to apply for the Borlaug Ruan internship in 2017. Once again World Food Prize changed my life, on March 16<sup>th</sup>, 2018 I got the letter telling me I was accepted into the Borlaug Ruan Internship, and that I would be sent to Londrina, Brazil. Overwhelmed with excitement I began studying Portuguese and getting prepared for what would be to me a completely new world. The shock was my motivation to prepare. I was just a small-town kid, but It was my goal to make use of this trip the best I could.

My time in Brazil, as interesting as it may be, did come with its own set of challenges. First and foremost was the challenge of the language barrier. All it takes is one word to completely change the meaning of a sentence. So, misunderstandings were continuous and constant. While I did my best to learn some basic Portuguese, complications were inevitable, as a result I often found myself using hand gestures like I was playing a game of charades. This was only one of many strategists I used to help communication flow a little smoother. I spent more time thinking before I spoke and developed a better understanding of how what I say can mean different things to others than it does to me. If I do not think about the other persons side of things I could end up insulting them or sounding arrogant.

The biggest challenge I faced was cultural understanding. It takes time to adjust even if Brazil and America are relatively similar. To immerse myself in the culture I did a few things. First, I asked my host father lots of questions such as history, language, politics anything that came to mind. Second, I studied the language whenever I had time often cutting into my sleep schedule or studying on the bus ride to Embrapa just to learn a little more. Finally, I talked to everyone I could, asking questions about their own way of life and their opinions on the country. My goal while there was to understand who Brazilians are as a country and a people. This took time though as I still needed to fight the first barrier I needed to learn how to speak to people in Brazil properly and not offend anyone. I did my best to keep this in mind whenever I felt like someone was being rude or unnecessary. If I did not learn how to do this I would have wasted the lesson this process was trying to teach us Borlaug Ruan Interns.

The last major challenge I faced while in Brazil was the complications with the research project. The research has unfortunately unfinished due to time constraints. I was notified the results would be unfinished after I had been in America for some time. As a result this affected the time I had to write my research paper it also changed the topic. Regardless of these complications I am still grateful for my time at Embrapa. During my time in the lab I helped one of the older students with the research. My job was to assist with whatever the students needed and learn how to processes worked. This included collecting, macerating, and analyzing samples. I helped many students and was given a wide range of experience but the focus of my time there was spent on studying genetic resistance of Diaporthe Phomopsis fungi complex in soybeans. In Brazil this complex would wipe out entire fields, wreak havoc on the economy, and stay in the soil for

years. I learned how the complex functions and the importance of maintaining resistance to it. Continuous resistance meant a great deal to Brazil's agricultural community, so for me It was an honor to study and assist with this project. But not just the project the lab itself was important. Brazil's top agricultural export is soybeans, which happened to be specialty of this government lab, hence the name Embrapa Soja (soybean). There are labs like these all over Brazil focused on improving crop yield and food security. So, it wasn't only assisting in the research that I was honored to do. Having the opportunity to study under the people in the lab was a great influence and inspiration to me as well.

My time in Brazil has changed who I am. It has given me more insight into the world around me. It allowed me to experience a different way of life, learn from a new culture, and see things I have never been able to before. Now when I have a debate with someone I find myself trying to understand the other person's view point rather than pushing my own agenda. The people I met their have help me grow as a person and taught me to keep pushing no matter what. As in the words of my Host father Marcelo Romano "JayEven you are a winner". Because of the experience I had, I now have more passion. I want to be involved in agriculture in some way whether it be economics, politics, or science. I see the problems in the world with more clarity now than before, because I was given a new viewpoint. I may not be an expert, but my experiences have peaked a greater interest in me. Now I will do what a small-town kid does best, I am going to work hard until I make a lasting impact on food security.

## Credits

There are many people I should thank for this opportunity. For the time I got to spend in learning all the life changing things I did Brazil, but overall, I must thank these key people. Dr. Norman Borlaug for bringing these great opportunities to us, the Ruan family for funding the expense, my host family from Brazil for taking care of me and inspiring me to succeed every day, Crystal Harris for watching over me and all the other Borlaug-Ruan Interns, and with great appreciation Ambassador Quinn for presiding over the World Food Prize foundation. Without these people I would not have written this paper and I would have never become the person I am today.

I would also like to mention my research site Embrapa they allowed me to participate in research at the lab and learn valuable tools for my future. My family who placed tremendous support and faith in me by allowing me to go to Brazil. My community who wrote updates about my life in Brazil in the local newspaper. Danelle Sweeney, the mother of my one of my best friends and a very close family friend, who helped me to revise this paper. Finally, Ms. Nancy Loen who has pushed me to succeed in life, follow my passions, and be crazy enough to follow the dream of changing the world.

## Abstract

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According to [mediamaxnetwork.co.ke](http://mediamaxnetwork.co.ke) Brazil currently ranks in the top three among national exporters of agricultural products: just behind the USA and the EU. This means they play a large role in feeding the world but not without any issues. Brazil's mega farms, are a double-



edged sword. On one side there is the challenge of feeding the world's growing population, and the primary source of the country's wealth. On the other side we see mega farms taking jobs from local people and creating an unequal distribution of wealth. Yet while trying to maximize its agricultural yields we see that the local economy falls behind as there is less distribution of wealth in Brazil's largest industry due to a low percentage of small farms and higher occurrences of mega farms. Agriculture sits at ethical dilemma here and needs a push in the right direction. This double-edged sword could turn into a powerful tool with the proper motivations, as Brazil is a large player in the world Agricultural economy. It will be a key player when it comes to feeding the projected world population of 10 billion in 2050. Which of these weighs heavier, how can there be a balance, and what should the next step be for Brazil.

## Introduction

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Brazil has gradually become a large and larger force in the world's agricultural market. It is the foundation of Brazil's economy and the road that has paved its success. Each year there is major efforts to improve and multiply the countries agriculture products. With such a focus on one part of the economy, one would expect there to be higher development of the systems associated with agricultural production. Inland farms for example, don't have the ease of transportation. There are no railroad systems or large rivers going to the coast making the transportation of agricultural good easy and economical. This means it costs even more for local farmers to get their products out to export, essentially hurting local economy by making it more profitable to ship the goods to another country to export it for them. In the larger cities other major damagers to both the economy and the ease of everyday life also comes down to infrastructure. Buildings often had

wasted space, roads were cramped and didn't always have efficient or safe systems. Then there is transportation, the number of people in Brazil's large cities means they need well developed transit system to take pressure off the automobile traffic, yet cities like Rio didn't seem to have this. The only major transportation options I saw were air travel and bus travel. While these are very helpful, there is still economic and social advantages to expanding the types of public transit in large cities as well as across the country in general. Certain laws could be remanded, while some structures and systems could be rebuilt to improve not only the quality of life and business but efficiency as well. One of the most important changes needs to be the tax on electronic entertainment luxuries Ex: smartphones, TVs, computers. The effect of this tax raised these products to near double their original price. This means its people often spend their money outside of the country rather than buy electronic luxury within the country.

The Brazilian Government has placed a great deal of emphasis on agricultural development. Many labs like the one I was position at in Londrina, Brazil; Embrapa Soja have only the goal of advancing agriculture have only the goal of advancing agriculture. In the past Brazil couldn't farm a large quantity of its land due to a pH problem in the soil. Work done in labs like Embrapa advanced agricultural knowledge and developed treatments for soils with unusual pH levels using phosphors. The government of Brazil encouraged this opportunity by introducing incentives for anyone who would move to the inland to farm. There were some major challenges to this incentive program. There were not many cities inland to provide living supplies. There also were not adequate roads or means of transportation to these farming areas. This meant people would have to build their own roads, bring months of supplies to live off, and haul all

their own produce to the nearest buyer. No small farmer could do this with ease. Before long, Brazil was introduced to the mega farm. People who had the wealth could maximize profits and reduce expense by buying hundreds of acres at a time building their own roads and hiring drivers to export their crops. This Mega farming has led to the foundation of Brazil's new economy. This contrasts with the foundation of America's economy which began with smaller farms that controlled and built America's position in the agricultural world. With the small number of land owners for this wide area of farmable land, Brazil has seen quite the opposite during its rise in the agricultural world. It is here where the government of Brazil has gotten an advantage. It's a lot easier to understand and work with a small group of people than it is a large group. Which means research can be done faster, more efficient and regulations can be imposed with greater ease than the US. This type of cohesion between government and business could have an incredible effect on Brazil. Mega farms can help the economy thrive, by providing the government money through taxes. This can then be routed into building better systems of transportation. The effect of this is it would cost less for large farms to export and the government would then be able to cover this difference in tax giving them more revenue to spend on other improvements. This also cuts down on unemployment as they will need people to build and run these new systems.

Regardless of the challenges it's presented with Brazil sits in an ideal position. The systems in place have not stopped Brazil's agricultural growth, but with the rising population it is in everyone's interest that the systems work their best. With continuing additions and reforms, Brazil has some great potential to feed the world and bring a stable economy back to its people.

## Method

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I conducted this research while I was in Brazil June 10<sup>th</sup> thru August 11<sup>th</sup> of 2018. During the study I talked with 3 groups of people that help me expand my knowledge and public view on the big farms, government and the economy. The first group was ages between 65 and 25. These were typically scientists with expertise in agriculture and the government for a multiple years considering they worked in a government soybean lab. The next group was ages 25 and under who were students of agriculture; most of these students worked for Embrapa as well. Finally, I was able to speak with a limited number of Brazilian farmers, both mega and small farm farmers. This allowed me to collect a wide range of knowledge and examine bias from different demographics. If this were the initial study. That was preforming in Brazil, my preferred method would be to create a data chart that would separate participants by a few different sectors; First age; second, occupation or educational background; third political viewpoints; finally, I would include financial position to try to eliminate any biased based on previous experience/knowledge that could influence the participants view of the farms, government, or current economy.

During this study I examined many different pricing variations between the US and Brazil and although not included in the study I cross examined with countries as well to be sure there were no inconsistencies or errors in my hypotheses.

To formally repeat or improve this study I would make a chart of the referenced type above, separating people by age, education, politics, and financial status. I would then create a series of unbiased questions on a 1 to 10 scale. 1 being strongly opposed 10 being strongly agree. Ex: Large farms hurt the local economy. I would design the questions accordingly to find the common viewpoints of the people and see what action most would support.

## Results and Discussion

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Mega farms have potential to feed the entire world if properly managed. Another great possibility is to reverse the economic damage they do by imposing taxes, incentives, and working closer with the mega farms. Brazil's mega farms are they truly the ethical and economically intelligent approach to success for the country. While it is true the scopes of this study may be limited by the fact economics has no perfect answer and that was not my initial study, there is plenty of evidence to support the good these large farms do. Some may disagree when looking at past records of agriculture being controlled by the rich and the few. For example, there was a period in the Roman Empire where farm land was held by the rich aristocrats and taken from the soldiers. This shifted the economic imbalance further to one side during this period. This is the main fear we have today, and our main challenge to overcome for the future of society.

To stop this from happening and to improve the overall economy of the nation there are many routes to take. In this case the simple answer is jobs. Brazil has an unemployment rate of 13.1 percent as stated by IBGE (Brazilian Institute of Geography and Statistics). Without these people working the poverty rate will remain at 25 percent (IBGE). As mentioned earlier, Brazil struggles with lack of adequate transportation systems. First, the lack of railroad infrastructure means that, every harvest both the government and the farmers lose profit without a proper transportation system to haul their crops for export. To build this it will cost money. To pay for this, the Brazilian government could impose a tax on the larger farms. Large farms may be upset over this

but if they see the benefits of this primarily help the and give them more profits they will likely be willing to give in and agree to the tax. That is one system that has a viable method of improvement all around. The revenue from creating these rail systems could also fund public transit in major cities provided this is a continuing source of tax revenue.

The next issues that would need to be solved is the Electronics tax issue. Brazil focuses its tax on all electronics, imports or domestic, providing the more viable option of flying out of the country to buy the electronics. In this case Brazil is wasting key profits for the country. Relieving the tax on the domestic products while keeping it on the imports will allow Brazil to start creating electronics of their own while having a direct market. While people may still buy things out of the nation and return with them, offering a cheaper option closer to home keeps some of that leaking profits inside Brazil and improves consumerism for those who do not have the money to buy a highly taxed electronic. Luxury items like these are important boosters for societies who wish to keep their funds local.

These options provide a possible continuation for work in Brazil and, hopefully, reducing wealth disparity and improving the overall economy. The most important part to the stabilization, though, is the partnership with larger businesses like mega farms. Their exports are the food that will feed our ever-growing population, while the partnership between government and business allows the economy to balance. The more money Brazil puts into growing business the more jobs there are and the more the wage gap begins to diminish. In this position Brazil has great ability to improve not only its country but its profits as well. The influx of jobs will reduce unemployment and thereby repair its economy.

## Conclusion

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Brazil's economic situation isn't perfect, no country is. When it comes to their mega farms though, the debate between what's right and wrong reaches an ethical dilemma. Mega farms can be both damaging and helpful to an economy. So, solid arguments can be made for both sides. When examining the socioeconomical impacts of these mega farms, many actions can be taken to break down these dilemmas and please both sides. If Brazil decided to promote these farms and use them as economic drivers, they could benefit from it. This is if Brazil works to ensure the money is routed back into the local economy, by changing laws and providing incentives that create more jobs. There are plenty of ethical concerns to overcome, so Brazil has a difficult stance to make but as they say "Viva Brazil."

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Embrapa Soja Londrina, Brazil



# Pictures



