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Dear Semilla Nueva Supporters,

In 2018, we launched the first ever commercial sale of biofortified corn seeds in Latin America. In 2019, we had a large task - proving that our model had real and lasting traction by growing our sales and impact. We were determined to learn, improve our model, and pursue long-term sustainability. In our second year of sales, we showed we were up to the task, nearly doubling our sales and selling 2,183 bags of biofortified corn seed. We reached over 5,000 farmer families and 150,000 consumers with more nutritious corn.

Farmer families who planted our seed had the chance to improve their families’ nutrition and income. Consumers who purchased our grain in the market were able to improve their nutrition as well. Increasing our impact in the second year of sales required a cross-organization effort across every department. Our sales team shifted its strategy to better target and engage the farmers who stand to see the greatest income improvements from our seed. We got creative; the marketing team began marketing the taste and texture of tortillas made with our grain, given the universally positive reviews of the flavor we’ve received from farmers. We learned to navigate quality control challenges and refined our partnerships, breeding efforts, and production practices to ensure that farmers have access to the highest-quality and most nutritious seeds for their families. These efforts are putting us on track to launch additional seeds in the coming years.

Why does all this matter? Because instead of fighting local culture, instead of fighting local culture - instead of fighting thousands of years of corn tortillas - we’re embracing it. We know that malnutrition is one of Guatemala’s greatest barriers to development, and we’ve already seen too many children (and generations) suffer from the long-term impacts of malnutrition. We have a vision at Semilla Nueva to scale the use of biofortified corn seeds across the country and make a dent in the problem nationally. We can’t do this alone. We’re grateful for all your support that’s gotten us to this point and your continued support as we look ahead and aim to double our impact again in 2020.

Saludos,

Curt

Executive Director
THE PROBLEM

Guatemala has the 6th highest malnutrition rate in the world, and over 46% of Guatemalan children suffer from chronic malnutrition. Chronic malnutrition costs Guatemala over $8.4 million daily through lost productivity, educational delays, increased disease, and hospitalization. In children, chronic malnutrition leads to permanent physical and mental stunting, illness, reduced school performance, and reduced lifelong earnings - capping their potential. Malnutrition traps generations and entire nations in a cycle of economic instability, poverty, and chronic health problems.

Guatemala’s high malnutrition rate is caused largely by its dependence on corn, which makes up over 50% of the average rural diet. Corn, a high-yielding crop and cultural staple, unfortunately lacks key nutrients. For many poor families, corn tortillas with salt are the only affordable option for most meals. We know that changing behavior is hard and often ineffective. Instead of working against corn’s cultural significance in Guatemala, we embrace it - we improve the nutritional content of corn and make sure it reaches farmer families who need it most.

THE SOLUTION

In 2018, we began commercially selling the first high-yielding biofortified corn seeds with improved protein quality and zinc in Latin America. Our corn seeds have 51% more protein quality, 19% more iron, and 36% more zinc than traditional corn, addressing key nutritional deficiencies found in Guatemala. Our corn can reduce childhood stunting by up to 20% and close zinc and iron gaps for women and children living in rural areas. By selling the seed at an affordable cost, we provide farmers with the chance to improve their incomes. Farmers who plant our corn seeds see larger, more resilient harvests, increasing their incomes while improving their families’ nutrition. People who purchase the biofortified grain in the market also experience improved nutrition.
What We Do

We partner with scientists at the International Maize and Wheat Improvement Center (CIMMYT) to identify seeds with higher nutrition content, high yields, and climate-resilient traits. Then we cultivate and test these seeds in Guatemala to ensure they perform well locally. In 2018, we launched our first biofortified seed, Fortaleza (Strength) F3, and began commercial sales. In 2019, we nearly doubled our sales numbers. Farmers who plant our seeds see higher yields and lower costs, increasing their incomes - making F3 the more attractive choice for farmers.

HOW IT WORKS

We contract experienced local farmers in Guatemala to produce the seed for sale. Using seed industry best practices, we reach smallholder farmers by hosting demonstration parcels and farmer field days. At field days, farmers and community members have the chance to see the performance of our seed first-hand. Then, we work with local agrostores to make sure our seed is stocked and available for farmers to buy.

Since the majority of farmers who plant our corn save some corn for their families to eat at home, our model improves the diets and increases the incomes of farming families who plant the seed. Farmers also sell excess grain into the market, improving nutrition for the poorest consumers who purchase grain in their communities. In 2019, over 150,000 people benefited from the improved nutrition of our seed.
In 2019, our second year of commercial sales, we sold 2,183 bags of biofortified seed. We nearly doubled our sales from 2018 and expanded to all four major selling regions across the country. We’re proud of everything we did to grow our impact this year.

- We captured nearly 2% of Guatemala’s hybrid seed market, proving the commercial viability of our model.
- We simultaneously conducted harvest, consumption, and economic surveys of families who grew our seed, building a strong evidence base for the impact of the model.
- We invested in our sales capacity, hiring more experienced staff, and expanded our marketing strategies, emphasizing the superior taste and texture of our tortilla.
- We refined our production practices, improving our profit margins for seed production.
- We partnered with local farmer associations to further expand the sale of biofortified seeds.
2019 Snapshot: SUCCESS HIGHLIGHTS

We sold 2,183 bags of biofortified corn seed

We launched local seed-breeding efforts and identified two higher-yielding seeds that could be added to our portfolio as soon as 2022

Over 5,000 farmer families planted and grew our biofortified corn seed

We strengthened the division between our NGO and seed venture arm, achieving legal status for the seed venture and building cohesive and complementary systems

Over 150,000 people consumed more nutritious corn as a result of our efforts

We launched new marketing campaigns built on the fact that farmers, their families, and tortilla shops universally love our grain for its tasty tortillas

We started producing seed that demonstrates higher yields and doubled our production profit margin in Chiquimula, a new region in eastern Guatemala

We finished the first version of an ex-ante impact model which helps us better understand our impact nationally and develop an evidenced-based path for scale

We began a partnership with the Nutrition Institute of Central America and Panama (INCAP) to create a nutrition testing lab capable of screening thousands of seeds for a lower cost. This will make future R&D efforts possible and improve our quality control
IN THE WESTERN HIGHLANDS

Don Jorge grew up in a corn farming family in the state of Huehuetenango of Guatemala’s Western Highlands. Guatemala’s Western Highlands are home to some of the country’s worst malnutrition and poverty rates, with malnutrition peaking at 79% in some indigenous communities. Don Jorge is the primary caregiver in a house of 17 people. Like most corn farmers in the area, Don Jorge relies on the corn he grows to feed his family for the year. While Don Jorge’s easy smile doesn’t give anything away, the past several years have been challenging, with prolonged droughts damaging his yields and threatening his ability to provide enough food for his family. Before switching to Fortaleza F3, Don Jorge planted criollo (a traditional, non-hybrid seed). Criollo seeds are cheaper but also provide lower yields. Additionally, they do not perform well against extreme weather – like prolonged droughts and storms – which are increasingly affecting Guatemalan farmers due to climate change. For Don Jorge, recent years of criollo harvest only provided enough food to cover his family’s needs for half the year, forcing him to spend limited resources buying more grain in the market.

Two years ago, facing another impending food shortage, Don Jorge asked his son Jorge Jr. to go into town and buy additional criollo seeds. In town, Jorge Jr. met a Semilla Nueva sales technician that understood the challenges impacting Jorge Jr.’s family – they needed an affordable alternative that could produce higher yields. Jorge Jr. decided to invest in F3. Initially, Don Jorge was disappointed with his son’s decision. However, the investment had already been made, so they planted F3 for the first time in the 2017 growing season. When the crops began to grow, exhibiting a much higher yield and stronger drought resistance, disappointment in the decision quickly gave way to gratitude. Fortaleza’s
improved performance meant that Don Jorge would once again be able to provide enough corn for his family's yearly consumption.

When we visited Don Jorge's land, he proudly showed Semilla Nueva staff his crops and explained that he had chosen to remain with Fortaleza F3 for the past two years because of its outstanding performance. Don Jorge maintains a demonstration parcel; demonstration parcels are a common marketing technique in agriculture to show the benefits of a certain crop to potential farmers. As a community leader and a self-proclaimed Forteleza advocate, Don Jorge is sharing the benefits of F3 with his neighbors, creating more demand for F3 in his community.

During a visit this year, Don Jorge spoke to his personal experience with F3, explaining that the stocks don't waver and break during strong storms. The seed's drought resistance also saves his family's food supply for the year. The area had recently gone through a 20 day drought during the rainy season. These events are precarious for farmers who depend on predictable rains and harvest for their family's diet. Fortunately, F3 continues to grow during drought, producing green and healthy ears.

Don Jorge enthusiastically shares his testimony about these benefits with the local community. When he originally told his neighbors about the improved harvest, they were hesitant to believe him. They couldn't believe that it was possible for corn to grow consistently during drought and storm conditions. When asked how he finally convinced them, he responded: "La gente tiene que verlo para creer." (The people have to see it to believe it.) Semilla Nueva is grateful that Don Jorge continues to manage his demo parcel and invites his community to see the performance of F3 first-hand!
Impact

THIS YEAR HAS BEEN OUR MOST IMPACTFUL YEAR YET.

5,439 families planted our biofortified corn

We estimate that 37,346 farmer family members benefited from planting and consuming our biofortified corn

A total of 157,976 Guatemalans had access to better nutrition through our biofortified corn in 2019

We estimate that 120,630 people bought and consumed our corn through local markets

We improved farmer incomes by up to $72.06 annually - our latest economic surveys indicated an average increase of $33.26 and $72.06, for low and mid-segment farmers respectively.
### HOW DO WE MEASURE IMPACT?
In 2019 we used three different surveys to assess our impact

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<th>ECONOMIC IMPACT What is the economic impact of our seed for farmers?</th>
<th>NET PROMOTER SCORE (NPS) The NPS is a common survey that measures a customer’s willingness to recommend a product to others and is used as a proxy for gauging customer satisfaction and loyalty.</th>
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<td>We interviewed 167 farmers across 4 regions in the country</td>
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<td>• 75% sold a portion of their corn</td>
<td>• 80% were able to save their corn for a period of 12 months</td>
<td>Our NPS is 6 which is the second highest behind Monsanto’s Dekalb making it the second most known maize brand</td>
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<td>*NPS = promoters [people who have heard of the brand] - detractors [people who have not heard of the brand]</td>
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<td>We surveyed 13 farmers to compare the costs, yield, and prices of Fortaleza F3 compared to competing varieties</td>
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<td>Low and mid-segment farmers produced more quintals of maize than competitively priced seeds</td>
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<td>Mid segment farmers gained an additional $31.25 when planting Fortaleza F3 compared to competitors</td>
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<td>On average, farmers saves $21.29 in production costs when planting Fortaleza F3 instead of competitors</td>
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In 2019 our Monitoring and Evaluation Coordinator worked with the Guatemalan government and INCAP to assess Guatemala’s latest expenditure, demographic, and consumption data. This analysis was used to develop an ex-ante model that will answer the question, “How many farmers have to sell how much biofortified grain which gets eaten by how many malnourished people before our seeds start to improve the nutrition of the Guatemalan population as a whole?”

The ex-ante model is a strategic tool that will let us know what degree reduction in population-wide nutritional deficiencies can come from different levels of F3 market penetration and help us decide where to concentrate our programmatic efforts.

We have learned three main things from the ex-ante model so far:

1. Large-scale adoption of biofortified seed with higher zinc levels is a worthwhile goal.

2. We will need to change public policy in order to see a larger impact. It would take us a long time to reach 100% market penetration with biofortified seed, but public policy can move the broader seed industry in this direction.

3. We still need to make improvements on our ex-ante model to account for higher yields and future seeds.
**Income**

- Other: 4771
- Individuals: 59884
- Sales: 87196
- Grants: 988997

**Total:** 1,140,848

**Operating Funds**

- Experimental Farm: 16210
- Marketing: 17354
- Collaborations: 17452
- Monitoring & Evaluation: 36073
- Development: 116102
- Administration: 225650
- Sales: 276551
- Production: 337847

**Total:** 1,043,239
Acknowledgements

Foundations

Mulago Foundation
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Expo 2020/Expo Live
USAID - Feed the Future
Fintrac - Partnering for Innovation
Popoyan
Open Road Alliance
Light a Single Candle Foundation
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