

Half of fertilizer used on U.S. farms is wasted

Solution - Timeliness

We're eliminating waste by building a service that applies fertilizer exactly when crops need it.

Our Advantage

We model seed, soil, infrared, weather, and topography data to prescribe precision high**frequency** fertilizer applications.

A Novel Autonomous Aircraft

Our airplane, equipped with a unique aerodynamic configuration and 1000lbs of payload executes high-frequency fertilizer application in a way competitors can't:

- Crop dusters are prohibitively expensive
- Ag. drones don't have payload for industrial farms
- Late-season mud immobilizes tractors

Root Cause

Fertilizer is applied early and infrequently, causing it to evaporate, erode, and seep deep into the soil before crops can absorb the nutrients.





Business Plan

In our 47 customer interviews, we found the fertilizer service industry is fragmented. We aim to rollup the industry by partnering with fertilizer supplier Mosiac (16% market share) to provide fertilizer and sales channels.

Market Size

Corn farmers spend \$130/acre on fertilizer inputs. Our waste reduction cuts inputs to \$70/acre plus \$6/acre in operating cost. Pricing our service at \$100/acre, we are profitable and competitive. Our SOM at adoption on 8 farms is **\$5 M** in sales. At 1/10th of corn farms nationally our SAM is **\$8.1 B.**

Market Entry

Our MVP is our software modeling, which will optimize fertilizer application with current machinery. With traction, we aim to partner with Pyka, an electric UAV company, to manufacture our fertilizer aircraft.

Environmental Impact

Fertilizer runoff is responsible for damage to water quality, air quality, and biodiversity. The primary source is corn farms, on which we aim to virtually eliminate fertilizer runoff.

206 million tons CO2e

is saved annually by Freyr's reduced fertilizer inputs, electrification, and preservation of carbon sinks otherwise destroyed by runoff.

Team

The team has combined experience of 10+ technical internships at Boeing, SpaceX, and Amazon. With diverse educational backgrounds spanning engineering, computer science, math, business, and more, we are also fortunate to have two Ph.D. mentors with extensive expertise in physics, data science, and IP, as well as two graduate students in M.S. Entrepreneurship

Team Members: Ronan Nopp | Warren Weissbluth | David Gloyd | Madison Heisterman | Moishe Keselman | Morgan Golden | Kush Patel | Andoni Telonidisa Mentors: Mark Sincell | Stephan Gmur