



# Investments in early stage biotech: Challenges and opportunities

Case Study: ClimateCrop upgraded plants do more with less



## Executive Summary

Company Name  
UM6P Ventures

Industry  
Deeptech - Agriculture and food

Location  
Morocco

## Market landscape

Crop enhancement through gene editing is likely to play a key role in mitigating climate change. Improvement of yield, photosynthesis efficiency and the development of climate-resilient crops are critical elements directly impacted by climate change.

## Introduction to ClimateCrop



ClimateCrop, located in Israel, is one of the few AgBiotech companies working on yield enhancement and climate resilient traits that contribute to food security, reductions in the impact of climate change, and the reduction of carbon footprints per unit yield using gene editing technology.



ClimateCrop is a climate tech company that enables plants to perform better and improves the plants' photosynthesis. The company uses gene editing to enhance the potential of plants (crops and trees) to harness more energy, store more carbon, produce higher yields and improve the survival rate from abiotic stresses such as heat-wave and drought. Many scientific efforts are underway

to re-engineer photosynthesis to increase yields and develop climate-resilient crops. ClimateCrop is one of the leaders in this space and was founded on science-based evidence stemming from more than six years of research at the Weizmann Institute of Science in Israel. The company is backed by a strong scientific and advisory team and has a strong

IP portfolio with patents granted in Australia, the EU (Germany, France, UK) and the United States. ClimateCrop has developed four major crops (potato, tomato, canola and sorghum) using GMO methods in greenhouses and small-scale field plot testing and is now developing a non-GMO crop using several gene modification techniques.



## Scientific and business challenges

As many public and private investors increase their share of the biotech funding market, total biotech investments are on the rise. While the conditions may seem advantageous, early-stage biotech companies that seek funding face major challenges that may stand in the way. With rising global competition to contend with, developing innovative assets and products can prove difficult, particularly in newer fields that are coming to the forefront in biotech such as gene editing technologies. Biotech startups rely heavily on the science behind their products. There are a number of common scientific challenges that initially may be overlooked, but can determine the success of an early-stage startup.

ClimateCrop needed access to top scientific talent. In highly technical industries, it is essential to have the right subject matter experts involved in the technology. Staying up-to-date on the market landscape and related news about gene editing technology and following the relevant authority figures is critical to technological development in the business. Well-informed experts on topics important to the IP strategy of the business with a long-term view of the industry are difficult to find. Investing in GMO and gene editing technologies are still slow due to the regulation barriers. In addition, a better understanding around regulation and compliance is

imperative, as complex products come with complex regulations. ClimateCrop needed to keep up-to-date with emerging gene editing technologies and the regulatory landscape in Israel and the USA. Continuous innovation in biotechnology also requires funding in a very competitive environment to keep pace with the increasing costs of developing novel products and to stay on top of new technologies that facilitate the entire process.

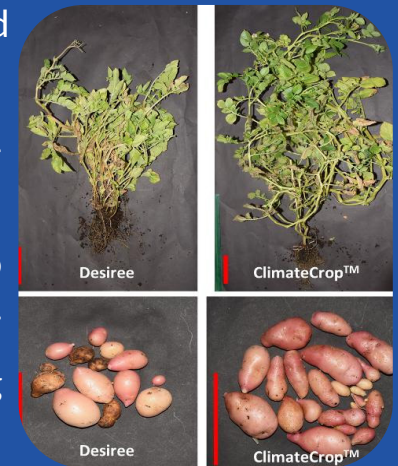


## Results

UM6P Ventures brings together smart capital and deep expertise to back visionary founders that are redefining our agriculture, crop, and food systems technologies. We nurture, hatch and boost startups. In addition to receiving investment capital, ClimateCrop also received Venture Builder support. ClimateCrop benefited from the offer consisting of literature, regulatory, subsidiary setup in the United States, vendor services, competitive landscape analysis, and industry partner collaboration.

### The wide range of support ClimateCrop received consisted of

- Creation of the R&D roadmap for gene editing and plant transformation projects.
- Technology, competitor, market and commercialization analysis.
- A benchmark of vendors in the United States to procure seeds such as potato, canola, and sorghum.
- Negotiation and procurement of the gene editing license for Cas-Clover from Deemtra.
- State of the art of Intellectual Property and final Regulatory Approval.
- Competitive analysis of potential gene editing competitors and comparable firms working on yield traits.
- The UM6P Ventures investment was used to support the growth and expansion of ClimateCrop. The funding enhanced its current technology, strengthened its hiring and retention processes, and supported its IP and legal strategy.





## Milestone achievements

UM6P Ventures provided ClimateCrop with support through its Agrobioscience subject matter experts. With the help of scientific expertise in plant genetic manipulation and gene editing ClimateCrop made significant advancements toward the achievement of its scientific roadmap milestones.

- Signed the non-exclusive license of CRISPR-MAD7 nuclease over to ClimateCrop Ltd. for the use of research and commercial purposes on plant genome editing.
- Benchmarked of the promoters, terminator sequences, and reporter gene elements which are being used to express the CRISPR-Cas systems in plants.
- Documented the IP benchmark status of the genetic elements to express gene proteins, methods, and processes of vector construction.

- Sublicensed the CRISPR-Clover gene editing system for research purposes as an alternative CRISPR-Cas system for gene editing.
- Created a study of the regulatory processes of the crops before approval to be released in the environment.
- Developed the process and data needed to apply for regulatory approval in the United States.

The ClimateCrop team partnered with international production and agribusiness corporations in order to develop non-GMO crops, including close interaction with the companies' R&D team to share knowledge and data. ClimateCrop also gained access to seed companies' germplasms in order to apply their traits to commercial varieties and eventually to perform the experiment field tests in the local environment.

“The UM6P Ventures builder offer and scientific support given to ClimateCrop immensely benefited the company in gene editing R&D, business, regulatory, IP and market analysis. Having subject matter expertise is not only important to enhance our business operations and improve our bottom line, but it is also invaluable to the maintenance and growth of our business.” ”

**Yehuda Borenstein**

CEO at ClimateCrop

For more information

<https://um6pventures.com/>  
<https://climate-crop.com/>