



Combining synthetic biology and gene editing to develop a new generation of herbicide resistant crops

Dr. Carlos Perez
Director of Strategy
BioHeuris



 **Founded:** 2016

Advisory Board

 **Locations:**

 **Employees:** 19
(40% PhD level)



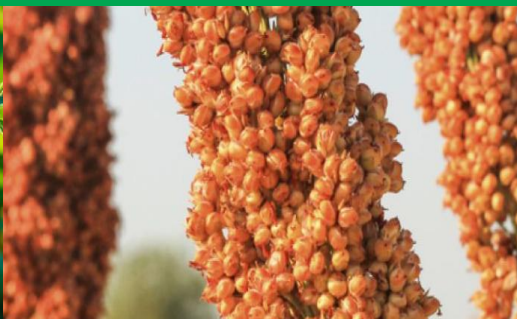
Argentina (Rosario)
USA (St. Louis)



Crops we are optimizing (under a certified ISO 9001 Quality Management System):



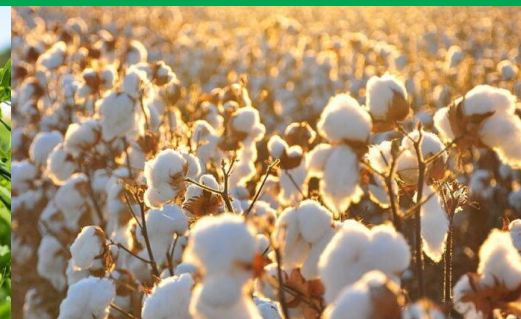
Soybean



Sorghum



Alfalfa



Cotton



Rice

We develop Sustainable Weed Management Systems

During product conceptualization we select **efficient, low-dose, and low-impact herbicides** and crops that are killed by them, considering also patents and registrations by country.



We **partner** (JVs) with seed and chemical companies **to rapidly optimize plant genomes** with our proprietary technologies, empowering crops to tolerate selected herbicides.



We will **broadly licence our patented traits** to independent and multinational seed companies to bring sustainable weed management systems to farmers in different countries.

Can reduce environmental impact!

Can reduce time and costs!

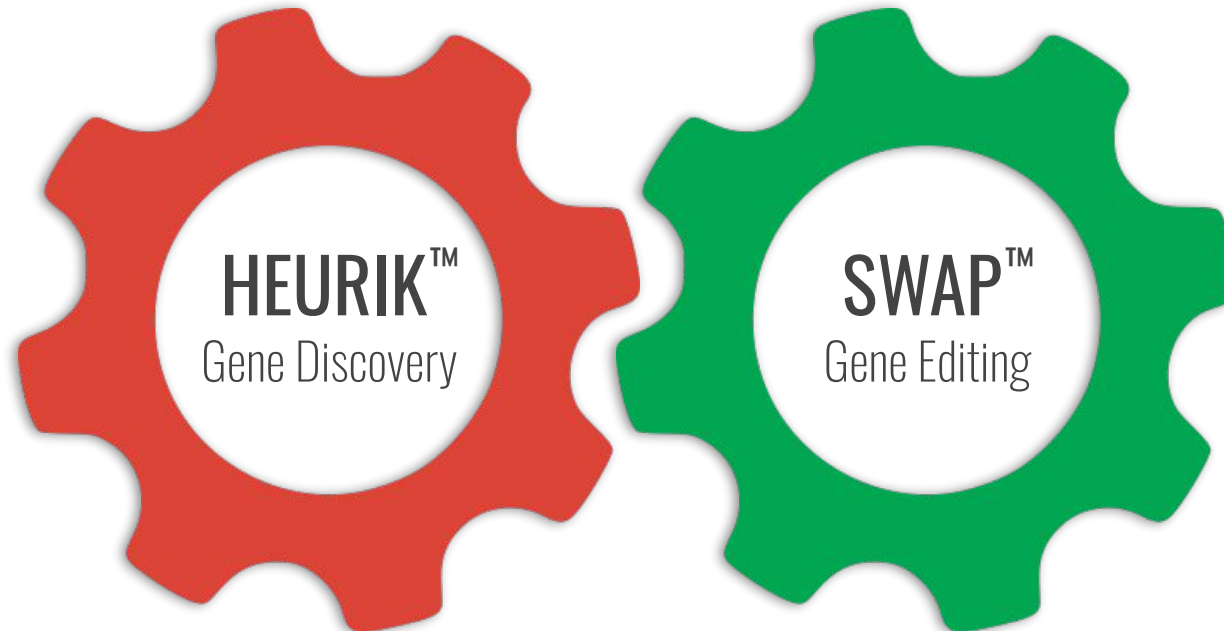
Can reduce prices!

We operate two integrated technology platforms

Our miniaturized high-throughput approach is able to mimic in a few weeks in the lab what it would take hundreds of hectares and years of field trials to accomplish

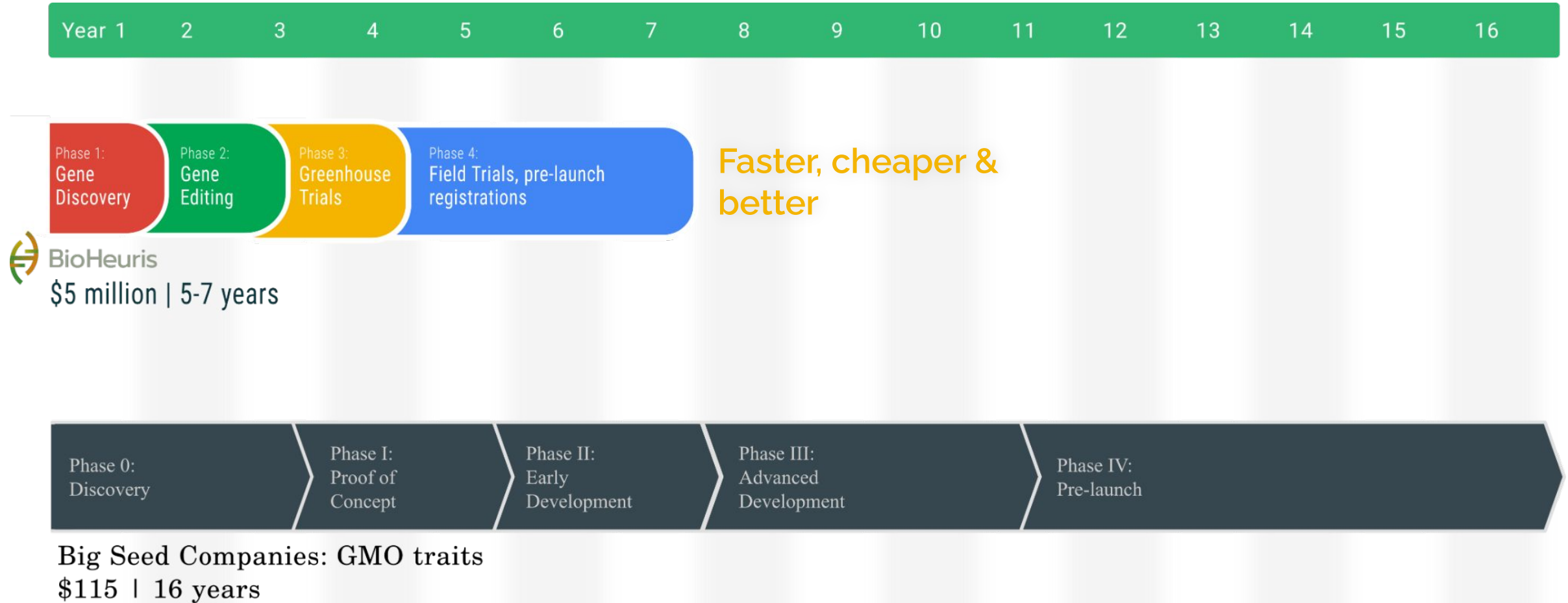
We are building a gene editing powerhouse to tune up commercial varieties of any company in 15 months with our weed control traits

- Works with genes from the crop elite variety to be edited
- Predicts level of herbicide tolerance and potential penalties in activity



- Works with elite varieties
- Transgene-free System

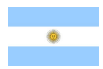
Herbicide tolerance: where is the innovation?



Source: Time and Cost to Develop a New GM Trait. A Study on Behalf of Crop Life International. Results April 2022.

Regulatory compliance

So far we have consulted and confirmed our products will not be regulated as GMO in:



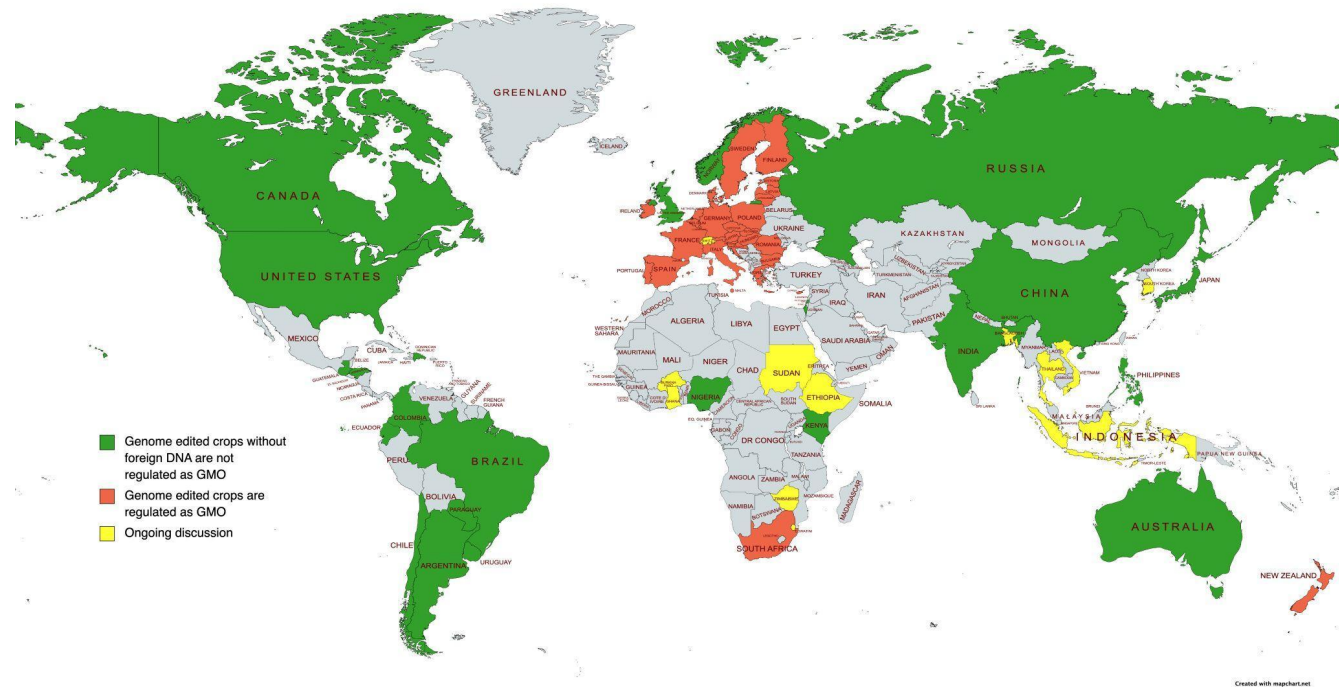
Argentina (CONABIA)



USA (APHIS)



Brasil (CTNBIO)



3D Intellectual Property

1st DIMENSION

CRISPR Technology

There are many CRISPR variations with different inventors/owners

It's possible to obtain a research license to start product development

It's possible to obtain a commercial license to market the products

2nd DIMENSION

New Traits

Can be protected by patents (trade secrets are not an option; mutations should be disclosed for commercialization)

Examples:

Clearfield[®] rice in Brazil & Argentina

iGrowth[®] sorghum in the US

3rd DIMENSION

Value Capture

Seeds "powered" with the traits can be protected by patents (US) and/or Plant Variety Protection laws (worldwide)

Complex in Argentina.
More favourable in other territories

Pipeline

Crop	Herbicide	2022	2023	2024	2025	2026	2027	2028	2029
Soybean 	Herb 1	Phase 2			Phase 3	Phase 4			✓ Market Launch
	Herb 2	Phase 2	Phase 3	Phase 4			✓ Market Launch		
	Herb 3	F2 ✗							
	Herb 4	Phase 2		Phase 3	Phase 4			✓ Market Launch	
Sorghum 	Herb 5 / Herb 3	Phase 2		Phase 3	Phase 4			✓ Market Launch	
	Herb 6	Phase 2		Phase 3	Phase 4				
Cotton 	Herb 2	Phase 2		Phase 3	Phase 4			✓ Market Launch	
Rice 	Herb 5	Phase 2		Phase 3	Phase 4			✓ Market Launch	
	Herb 7	Phase 1	Phase 2	Phase 3	Phase 4				
Peanuts 	Herb 2	Phase 2	Phase 3	Phase 4			✓ Market Launch		

Strategic Partnerships



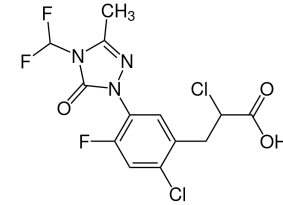
Seeds

+



Traits

+



Herbicides





Thank you!

Contact Information

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