

# Updates – Seed Money Project 2023

## High-throughput phenotyping for developing hyper-yield and climate resilient soybean in South Korea (PhenSoy)

Final presentation SMP 2023 - 14 November 2023

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# Team members SMP PhenSoy 2023

1. Priska Prasetya, Business Developer Plant Sciences Group – PL of SMP.
2. Rick van de Zedde, Project manager NPEC / Senior Researcher
3. Robert van Loo, Senior Researcher Plant Breeding Abiotic Stress
4. Nicole Kim, Project Assistant Agrosystems Research

Facilitated by:

1. Hojin Kang, Agricultural Advisor at the Dutch embassy in South Korea
2. Kwang-Soo Cho & Minwoong Jung, RDA representatives at WUR

# Objective and key topics of SMP PhenSoy

**Objective:** To explore the possibility for future R&D projects with South Korean partners (public and private) on the subject related to high-throughput phenotyping for developing climate-resilient soybean in South Korea.

## Topics of interest:

1. High-throughput screening of soybean for breeding purpose using facilities of the Netherlands Plant Eco-phenotypic Centre (NPEC)
2. Digitalisation in greenhouse setting and open field agriculture
3. Data acquisition and data analysis

# Target calls

The larger calls that we initially targeted:

1. PPS proposal. Deadline: 1 September 2023.
2. Bilateral: Call for international projects 2023 by Rural Development Administration (RDA) International Cooperation team.  
Deadline: 11 September 2023.
3. Open to more...

# Timeline and key activities

Feb 2023:

- First consultation with the Agricultural Advisor at the Dutch embassy in South Korea

Feb-Jun 2023:

- Started consortium building
- Preparation of the field visit to South Korea
- Field visit in Jun 2023
- Attended the Plant Breeding Conference in South Korea

Jul-Aug 2023

- Continue consortium building
- Joint proposal conceptualisation

Sep 2023

- Deadlines of the PPS and RDA proposals

Oct-Dec 2023:

- Waiting for decisions
- Continue exploration with other partners
- Scouting for new calls
- Next steps after SMP PhenSoy

# Key learning points

1. In South Korea, private sectors' involvement is very rare in agriculture especially for staple crops (e.g. soybean, rice). The breeding of these crops is largely controlled by RDA (public). For this reason:
  1. The opportunity for foreign breeding companies to enter South Korean market is limited.
  2. Hojin Kang strongly urged to use the SMP PhenSoy to build a relationship with RDA in order to create more bilateral projects.
2. Opportunities:
  1. For PPS: Private companies in South Korea are keen to improve their knowledge on the analysis component of phenotyping data with NPEC and WUR (software)
  2. The horticulture sector is more open to private and foreign sector's involvement (onion, tomatoes, Korean pepper)

# Results until today I

## **1. Submission and approval of proposal to RDA International Cooperation team** on extracting insight out of raw phenotyping data for breeding of soybean with waterlogging tolerance in South Korea

- a. Total budget proposed is EUR 448,000 for 4 years for WUR.
- b. The consortium partners:
  - i. South Korea: National Institute of Crop Science at RDA
  - ii. Netherlands: WUR (main international partner)
  - iii. Germany: The Leibniz Institute of Plant Genetics and Crop Plant Science Research (IPK)
- c. Status: Contracting

# Results until today II

## 2. Submission of a PPS proposal titled 'Pot2Plot'

- a. Topic: Pot2Plot – Linking high-throughput phenotyping to crop performance in the field for climate-resilient crops (quinoa, onion, soybean)
- b. Total budget proposed: EUR 2,832,000 for 4 years. The total contribution from consortium partners was 1,416,000 Euro and we asked for a public cash contribution of 1,416,000 Euro from the Dutch Top Sector.
- c. Lead applicant: Radicle Crops
- d. The consortium partners:
  - i. Netherlands: Radicle Crops, Bejo, Kioti Europe, PerClass
  - ii. South Korea: Korea Institute of Science and Technology (represented by the German branch), Daedong Industrial Co, Insilicogen, Gaooze
  - iii. Botswana: SeedCo
  - iv. Sweden: SmartPlantBreeder AB
- e. Status: Rejected



# Results until today III

## f. Lessons learned:

- Reason for rejection: Choice of crops in relation to the economic relevance for the Netherlands, even though the reasoning behind the choice of crops was due to the different architecture of the crops.
- The proposal may be more relevant for 'Internationalisation'
- To be more cautious about the size of the proposed budget.

**3. MoU between Korea Institute of Science and Technology (Pot2Plot partner) and WUR** during the State visit by the South Korean president (Suk-yeol Yoon) to the Netherlands on 12-14 Dec 2023. The purpose is to give a strategic leverage for KIST to ask for research funds from the Ministry of Science and Technology for KIST-WUR collaboration.

**4. In general, a new and revived network** of companies and public research institutions on the subject of automated digital phenotyping in South Korea and the Netherlands for other funding opportunities

# Next steps

1. Applying for Eurostars with Eureka with selected South Korean partners e.g., Insilicogen (Deadline 14 Mar 2024)
2. Continue engaging with KIST to mobilise R&D funds from South Korean Ministry of Science and Technology
3. Consider to re-submit for PPS Top Sector in 2024. In the meantime, continue scouting for other relevant funding opportunities.
4. Project implementation of the RDA soybean project!

# Thank you for your attention!

Explore [www.wur.nl](http://www.wur.nl)! Got questions?

Reach out to us!

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