

Seed Money Project - 2023

Sustainable Cultivation of Ginger and Turmeric in Indian Greenhouses

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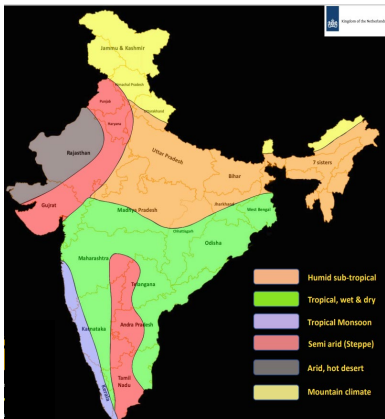
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Private partner presenting: Desh Ramnath (Horizon 11)



SMP India: background

Major agricultural producer, exporter with diverse climate zones, high value crops



But...

[Indian greenhouse farming - which regions to focus ?](#)
[| Nieuwsbericht | Agroberichten Buitenland](#)

- **Climate change:** heat waves, irregular rainfall affect food production
- **Food safety challenges:** heavy-metal, pesticide residues in produce

Ginger and turmeric: **Growing worldwide demand** due to medicinal properties



- High open-field production in India – but **export rejection:** heavy metal, pesticide residues
- Investment in protected cultivation needs to be returned by **high yield and quality**

Objectives

To explore possibilities and challenges for sustainable cultivation of ginger and turmeric in greenhouses in India

- Current state of greenhouse horticulture in India?
- Main areas for innovation, where Dutch companies could contribute?
- Most promising business cases and research possibilities?

WUR Team members



Filip van Noort
Crop Specialist



Yutong Qiu
Business Developer



Kshiti Mishra
Researcher Greenhouse coverings & Energy

SMP Consortium

PIB Cluster



Cluster Leader



Business Case Development



Automation/Irrigation Systems

Local Problem Owner



Precision farming



Biological Pest Control; IPM



Irrigation Systems



Horticultural projects
Greenhouse Design & Construction



Main challenges identified, follow-up possibilities

Greenhouse design and climate control

Crop cultivation strategies

Biological control

Challenges

- Managing heat and humidity energy- , resource-use efficiently

- Capacity-building
- Strategies maximizing yield, quality
- Pollination (quality)

- Control of thrips
- Calendar spraying
- Restrictions on importing beneficials

Follow-up Research

- Mid-, high-tech greenhouses
- Data : Benefits (yield, quality, safety) v/s Costs (economic, energy, resource-use) under increasing levels of technology

- Growing protocols, comparative trials, demonstration of greenhouses for high-value crops (for export)
- Capacity building: crop cultivation, greenhouse management

- Identify, evaluate, multiply local species of natural predators for greenhouse pests
- Combine biological control with natural pollinators in greenhouses

Consortium/ Instruments

Consortium

- Dutch climate-control tech companies (design, screens, coatings, dehumidification,...),
- Indian growers
- Indian knowledge institutions

PPS Project

Consortium

- Dutch & Indian GH companies (design, irrigation, substrates, climate control,...),
- Retailers,
- Indian growers, knowledge institutions

PPS (trials) /GroenPact (capacity building)

Consortium

- Dutch, Indian biocontrol companies,
- Dutch, Indian knowledge institutions,
- Indian growers

Academic/student exchange grants, e.g. Prime Minister's Research Fellowship (India)

Follow-up steps

- Attempted PPS proposal combining all aspects: could not amass sufficient funding
- Dutch companies, Indian growers showed positive interest in conducting trials in India, developing growing protocols, biological control

Reflection

- Broadening focus (from ginger, turmeric to a wider variety of crops) led to overly enlarged scope (and budget) of the follow-up project
- Starting with specific end-goals in mind (instead of broad exploration) could have led to streamlined follow-up projects, greater clarity for potential consortium members

Next steps

- Research projects with narrower focus
- Identification of alternate funding channels

Evaluation: Horizon 11



- No clear end game
 - SMP should be the first step towards an end game
 - Every cluster member should have skin in the game
 - Meaning that every member should have a clear ROI (WIIFM)
- More focus in SMP
 - Better focus would create more valuable and implementable results
- You do not have to be sick to become better
 - The research done by the WUR has still a lot of value
 - Good conducted research that validates corporate (biased) assumptions
 - Creates an unbiased academic stamp on corporate strategy
- Next step
 - The SMP could still result in new collaborations and a new end game