



# Sampurna

Grand Challenge 2026

## Reducing Food Loss Strengthening Food Systems in Karnataka

Core Partners



Communication  
and Digital Partner



Event Partner






**Sampurna**  
Grand Challenge 2026

# Sampurna Grand Challenge 2026

*Reducing Food Loss  
Strengthening Food Systems in Karnataka*

**Webinar: What, Why & How to Apply**

 Friday, 20th March 2026

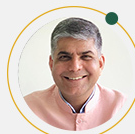
 11:00 AM – 12:30 PM

**Join the Webinar to Start Your Application Journey**



Opening of Application Window & Keynote by  
**Mr. Girish R, IAS**  
Secretary, Dept. of Horticulture & Sericulture, Govt. of Karnataka

## Speakers



**Dr. Parul Soni**  
Founder, ABWCI  
Founder, TTC



**Dr. Bhuvaneshwari Balasubramanian**  
India Country Director  
GAIN



**Mr. Ajay Pandey**  
Co-Founder, TTC



**Ms. Debjani Samantaray**  
Global Manager, Nutrition  
Connect & KMM, GAIN Global



**Mr. Asim Juneja**  
Sr. Manager, TTC

Core Partners



**NUTRITION  
CONNECT**



**FORTUNA PR**

Communication  
and Digital Partner

Event Partner





# Official Application Launch

20<sup>th</sup> March 2026



# Context & Need for the Challenge

---



# Karnataka: A Horticulture Powerhouse

*Karnataka stands among India's most productive horticultural states; growing some of the nation's most prized and nutritious crops across diverse agro-climatic zones.*



## Geographic Reach

Horticulture spans diverse agro-climatic zones from the dry Deccan plateau to the humid coastal belt. It enables year-round production of a wide range of crops.



## High-Value Crops

Grapes, pomegranate, mango, and coffee are globally traded Karnataka commodities. The state leads India in several export-oriented varieties.



## Farmer Livelihoods

Millions of small and marginal farmers depend on horticulture for their primary income. The sector is central to rural employment and women's economic participation.



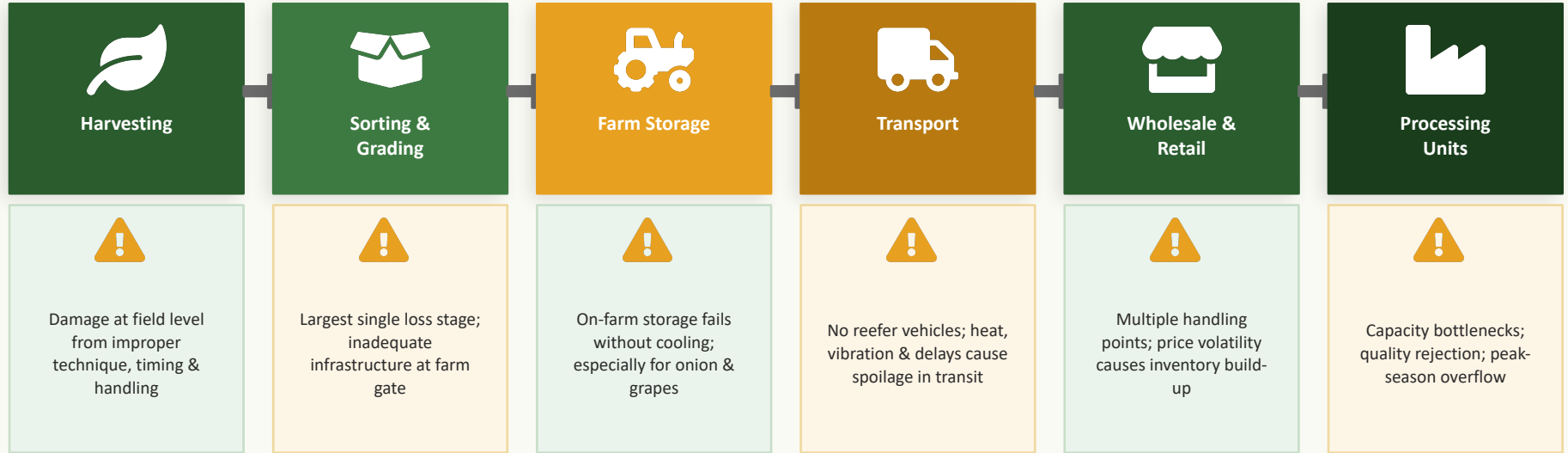
## National Importance

Seven priority crops - Onion, Mango, Banana, Tomato, Grapes, Pomegranate, and Pineapple; together form the backbone of Karnataka's fresh produce output (4-year cumulative value is **₹88,000 Crore**)

*Despite this agricultural strength, a significant share of what Karnataka grows never reaches its full potential. It is lost somewhere between the farm and the consumer.*

# Losses Happen at Every Stage of the Value Chain

*From the moment of harvest to the final point of sale, produce faces risk of loss at multiple stages.*



***No single stage is safe. The losses compound where each stage adds to the next, eroding what the farmer produced.***

# Why Do These Losses Happen?

*Structural gaps across the value chain drive avoidable post-harvest losses*

## Cold Chain Gaps



Cold-chain capacity is critically low for banana, mango, and tomato. Lack of pre-cooling and refrigerated transport exposes perishable produce to ambient temperatures.

## Fragmented Logistics



Transport losses affect most crops. No refrigerated vehicles for last-mile delivery in taluka markets - produce is exposed to heat, vibration and extended delays.

## Weak Sorting & Grading



Sorting and grading is the single largest loss stage across all priority crops. Inadequate infrastructure at farm gate and collection centres drives quality and quantity losses.

## Limited Processing Capacity



Processing units are a critical hotspot for FIVE OF THE SEVEN KEY CROPS. Tiny or micro-units lack the scale, investment and quality infrastructure to absorb peak-season arrivals.

## Information & Market Gaps



Farmers lack real-time demand data, leading to distress selling during surpluses; especially for onion and banana. Price asymmetry between farm gate and wholesale is severe.

## Smallholder Vulnerability



Most producers are small and marginal. Limited access to pack-houses, pre-cooling, or FPO services.

# The Cost Goes Beyond Food Lost

*Post-harvest losses create a cascade of consequences for farmers, families, and the state*



## Farmer Income Lost

Every kilogram spoiled is income the farmer worked for and never received. Smallholders; with no buffer, are forced into distress sales, worsening debt cycles.



## Nutrition Denied

Fruits and vegetables carry critical vitamins and micronutrients. When they spoil before reaching consumers, it directly worsens diet quality for families who need it most.



## Women Bear the Burden

Women farmers and post-harvest workers are disproportionately affected by losses as income earners who face price crashes, or as caregivers who manage tighter household budgets.



## Market Instability

Losses during surplus seasons trigger price crashes that hurt producers. Losses during lean seasons drive consumer prices higher. Both erode trust in the value chain.

# We Needed Evidence — Not Assumptions

*To design a meaningful innovation challenge, we first had to understand where losses truly occur.*

**01**

## Identify 7 priority crops

Onion, Mango, Banana, Tomato, Grapes, Pomegranate, Pineapple — representing the majority of horticulture production

**02**

## Map every value chain stage

Farm level: harvesting, sorting, packaging, storage → Market level: godown, wholesale, retail, processing, transport

**03**

## Assess loss at each stage

Stage-wise loss percentages from field assessments, FPO interviews and officer estimates across districts

**04**

## Identify critical hotspots

Pinpoint where the highest losses occur by crop and stage — to design targeted, evidence-backed challenge categories

## Why a Gap Assessment?



A cold storage scheme placed in the wrong district solves nothing.



A logistics platform built for a crop whose losses peak at the farm gate misses the point.



Good intentions without grounded diagnosis lead to the wrong solutions.



We needed to know which crops, which stages, and which structural barriers before designing anything.

# What the Gap Assessment Revealed: Crop-by-Crop

*Each crop has a distinct loss profile — but the failures share common structural roots.*

Crop	Key Loss Stages	Root Cause / Key Reason
Onion	<i>Harvesting · Farm Storage · Sorting</i>	Improper curing, non-scientific storage, lack of field-level grading equipment
Mango	<i>Harvesting · Sorting · Retail</i>	Mechanical damage from stick harvesting, pest/fungal incidence, and transport delays
Banana	<i>Collection · Sorting &amp; Grading · Transport</i>	Knife cuts, bruising, latex staining - 38% lost at grading alone due to improper handling
Tomato	<i>Processing Units</i>	Limited processing infrastructure and handling damage - compounded by seasonal gluts
Grapes	<i>Farm Storage · Processing Units</i>	Gray mold, moisture loss; no refrigerated vans; limited cold chain access in producing districts
Pomegranate	<i>Packaging · Wholesale · Transport</i>	Non-standard packaging for long-distance transport; lack of real-time market information
Pineapple	<i>Harvesting · Transport</i>	Absence of pre-cooling - shelf life collapses from 12 days to 3 or 4 days during transit

# From Evidence to Action: The Sampurna Grand Challenge 2026

*The gap assessment showed us exactly where the problems lie. The challenge invites the ecosystem to solve them.*



## Harvest & post Harvest Farm Operations

*Post-Harvest Value Chain Solutions*

Harvesting, sorting, grading, farm storage, on-farm mechanisation and pre-cooling



## Packaging & Aggregation

*Sustainable Packaging + Community Models*

Biodegradable packaging, reusable crates, MAP, community aggregation and collective enterprise



## Logistics & Transport

*Efficient Logistics Optimisation*

Cold-chain logistics, last-mile transport, route optimisation, shared reefer vehicles



## Processing, Finance & Digital

*Finance + Digital + Circular Economy*

FPO credit and working capital, digital decision systems, waste-to-value and circular economy solutions

# What This Means for the Government of Karnataka

*Reducing food loss is not a departmental objective. It is a state-level strategic imperative.*



## Farmer Welfare & Livelihoods

- Higher farm-gate price realisation when losses are reduced
- Less distress selling during surplus seasons
- Stronger FPO and collective enterprise models
- Empowering smallholder and women farmers economically



## Nutrition & Food Security

- More nutrient-rich produce reaching families affordably
- Reduced seasonal price spikes that hurt consumers
- Improved dietary diversity, especially for vulnerable groups
- Better alignment between agricultural output and nutrition outcomes



## Economic & Policy Ambition

- Strengthens Karnataka's position as a national horticulture leader
- Positions the state at the forefront of agri-innovation in India
- Attracts investment and enterprise into the horticulture sector
- Supports FPO-to-MSME transition at scale across the state

# Why the Grand Challenge Format?



## Globally Proven Model

GAIN's Fortify Forward Challenge has been run successfully in 10+ countries, surfacing market-ready innovations that reached scale through government and private sector support.



## Surfaces Local Solutions

Context-specific, deployable innovations from startups, FPOs, and academic institutions across India — not generic solutions imported from elsewhere.



## Multi-Sector Collaboration

Government, private sector, NGOs, and innovators co-design and co-create solutions — creating partnerships that outlast the competition itself.



## Government-Backed Scale Pathway

Winners gain access to a structured Deal Room with buyers, investors, and state departments — creating real deployment and scale opportunities, not just recognition.



## FPO Transformation Ambition

Beyond identifying innovators, the challenge aims to strengthen up to 100 FPOs towards MSME-grade business maturity — transforming Karnataka's agrarian enterprise ecosystem.



## Evidence-Driven Design

Challenge categories are grounded in the gap assessment — each category directly addresses a validated loss hotspot, ensuring maximum relevance and potential impact.

**The potential is real.**

**The time to innovate is now.**

# The 7 Challenge Categories

1



## Post-Harvest Value Chain Solutions

On-farm handling, sorting, grading, cooling, mechanisation

5



## Innovative Financial Access Solutions

FPO credit, warehouse receipt finance, digital lending, insurance-linked products

2



## Sustainable Packaging Innovations

Biodegradable packaging, reusable crates, MAP, freshness indicators

6



## Digital Decision Systems for Food Loss

Multi-stakeholder platforms, predictive analytics, end-to-end traceability

3



## Efficient Logistics Optimisation

Cold chain, last-mile transport, route optimisation, load matching

7



## Circular Economy & Loss-to-Value Solutions

Dehydration, juice/puree, biogas, composting, by-product extraction

4



## Community-Led Aggregation & Enterprise

FPO models, collection centres, collective branding, individual champions



# Challenge categories

Overview of participation and timelines



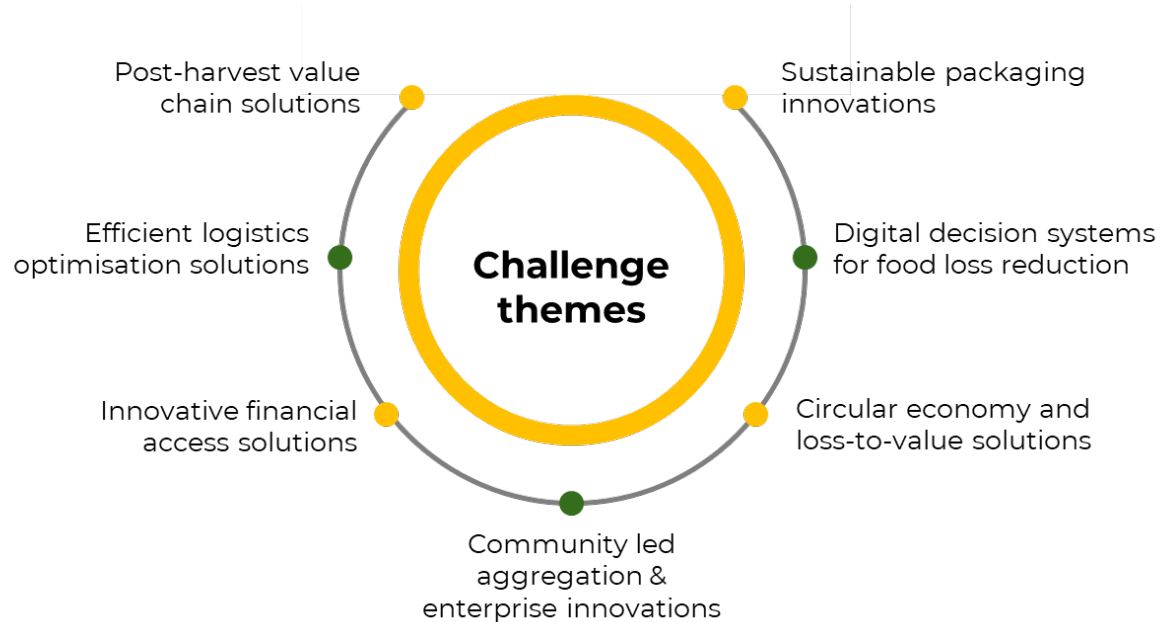
# Challenge categories

---



# CATEGORIES

Beyond reducing food loss, the Challenge aims to seek to drive value addition, strengthen market systems, and enhance farmer incomes through scalable, replicable, technology-enabled solutions



Applications are invited for solutions across crops; however, the programme places special emphasis on the following crops: *Onion, Mango, Banana, Tomato, Grapes, Pomegranate, and pineapple*

# CATEGORIES – DEEP-DIVE



## Post-harvest value chain solutions

Post-harvest losses concentrated at the farm gate, where a sudden glut of produce — onions, tomatoes, bananas — meets insufficient infrastructure for sorting, cooling, and basic processing.

Without accessible post-harvest solutions, farmers have no choice but to sell immediately, often at distress prices.

Apply if:

- Your solution handles, sorts, grades, cools, or processes produce **immediately after harvest** — on-farm or near-farm.
- It reduces spoilage, extends shelf life, or **improves produce quality** through storage, on-farm processing, or early-stage preservation.
- It helps **absorb or manage peak-season surplus** by converting overflow into storable or processed forms
- Examples: Packhouses; Low-cost and solar-powered cold storage; Shared processing equipment; on-farm grading tools, etc

# CATEGORIES – DEEP-DIVE



## Sustainable packaging innovations

Inadequate packaging is a hidden but significant source of loss across supply chains. Produce is routinely transported in thin jute sacks or open crates that offer little protection against bruise, dehydration, and contamination resulting in rejections and discounts at the market

Apply if:

- Your solution centers **on packaging materials, containers, or systems** that protect produce quality during handling, storage, or transport.
- It uses **innovative, eco-friendly, or sustainable materials** (biodegradable, reusable, or modified-atmosphere) to reduce waste and spoilage.
- It improves **produce protection through packaging design**, including smart or active packaging (e.g. sensors, MAP liners, wax coatings).
- Examples: Ventilated and stackable crate systems; Biodegradable and compostable packaging; Modified-atmosphere and active packaging; protective materials etc.

# CATEGORIES – DEEP-DIVE



## Efficient logistics optimisation solutions

Slow and uncoordinated production after harvest is one of the most avoidable sources of loss. Inefficient use of logistics (trucks, loading etc); prolonged poor storage implies rushed, unoptimized trips that arrive at market either too early or too late for the farmers

Apply if:

- Your solution improves **transport, distribution, or cold-chain logistics** — routing, scheduling, load consolidation, or fleet management.
- It uses technology (apps, software, IoT) to **reduce transit times or delays** between farm and market.
- It helps farmers or FPOs **access vehicles, coordinate storage, or optimise routes** during peak harvest flows.
- Examples: IT enabled transport/ logistics/ tracking; Last-mile cooling solutions; Shared cold-chain services

# CATEGORIES – DEEP-DIVE



## Community-led aggregation and enterprise innovations

Dominated by smallholder farmers with fragmented landholdings and limited individual market power, farmer bears the full cost of transport. Aggregation, whether through FPOs, village collection centres, or informal farmer groups, directly addresses these constraints by enabling volume-based contracts, shared logistics, and joint quality management

Apply if:

- Your solution **enables farmers to aggregate, coordinate, or market collectively**, through groups, shared facilities, or cooperative enterprises.
- It is a **community-driven or farmer-led model**, such as a village aggregation hub, FPO, or collective marketing initiative, that improves market linkages for smallholders.
- It **reduces individual transaction costs and losses** by strengthening farmer collectives or building shared post-harvest services.
- Examples: FPO formation and professionalization support; Village-level aggregation hubs; Collective marketing and buyer linkage; Women-led and SHG enterprises

# CATEGORIES – DEEP-DIVE



## Innovative financial access solutions for FPOs and agri-enterprises

Even where appropriate post-harvest technologies exist, many FPOs and small agri-enterprises cannot access the finance to adopt them. Conventional bank loans are designed for crop production — not for cold rooms, transport equipment, or packhouse upgrades — and are rarely disbursed in time for seasonal needs.

Apply if:

- Your solution provides **financial services or instruments** - loans, credit lines, insurance, or payment systems - tailored to FPOs, farmers, or agri-businesses in post-harvest activities.
- It addresses **cash-flow gaps or finances asset purchases** (storage, transport, processing equipment) that reduce food loss.
- It uses **innovative financial models or technology** - mobile money, blockchain, value chain finance, or blended finance - to extend access to agri-entrepreneurs.
- Examples: Seasonal and harvest-linked credit; Digital and alternative lending platforms; Credit guarantee and blended finance structures

# CATEGORIES – DEEP-DIVE



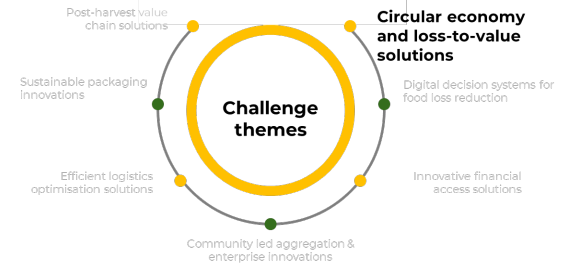
## Digital decision systems for food loss reduction

A significant share of post-harvest losses stems from fragmented, delayed, disconnected decision-making across value chain. Farmers decide when to harvest without knowing storage availability. Traders dispatch trucks without knowing market conditions. FPOs sell without visibility on competing supply arrivals creating systemic inefficiencies

Apply if:

- Your solution **integrates multiple data streams or value chain stages** connecting farm, storage, logistics, and market data to enable coordinated decisions.
- It enables **decision-making across multiple actors** - farmers, FPOs, transporters, traders rather than solving for a single user or function.
- It provides **actionable recommendations**, not just data visibility, helping users decide when to harvest, where to send produce, or whether to store or sell.
- Examples: Integrated value chain decision platforms; Predictive and prescriptive analytics; End-to-end traceability and visibility tools

# CATEGORIES – DEEP-DIVE



## Circular economy and loss-to-value solutions

Even in well-functioning supply chains, a portion of horticulture output is unmarketable in its fresh form. In the absence of structured secondary uses, this material is sold at deep discounts or discarded entirely. A circular economy approach reframes this waste as feedstock: surplus mangoes become puree etc.

Apply if:

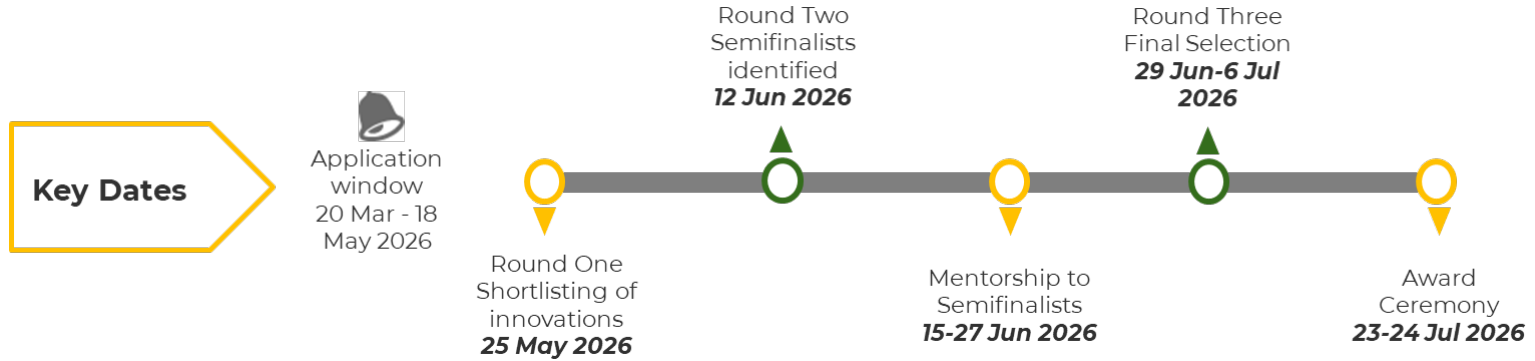
- Your solution **creates new uses or products from surplus**, off-grade, or unsold produce- such as juices, jams, animal feed, biogas, or compost.
- It implements **recycling or upcycling** of horticultural by-products, closing the loop and generating additional economic or environmental value.
- It is focused on the **circular use of bio-waste-** not just disposal- converting food loss into a resource
- Examples: Dehydration and drying enterprises; Value-added processing of rejects; Bioenergy and compost systems; Packhouse and aggregation centre waste recovery

# FAQs

---



# FAQs ON THE CHALLENGE



## WHO CAN APPLY?

Individuals, small teams, organizations, startups, MSMEs, FPOs, social enterprises implementing solutions to reduce food losses across the farm-to-market value chain.

## WHAT'S IN IT FOR YOU?



**Recognition & rewards**



**Felicitation**



**Opportunity to work with Govt**



**Networking opportunities**



**Expert mentorship**



**Thank You**

---