

Krishi Vigyan Kendra, Thiruvannamalai

El-Nino Impact: Management techniques for farmers

1. Crop Geometry Re-engineering: Short-Duration Millet-Pulse System

Intervention: Replace paddy in Kuruvai (June-July) with CO-6 Samai / TNAU cumbu hybrids; adopt 60-day maturity window to align with curtailed rainfall period. Intercrop with VBN-6 Red Gram (4:1 row ratio).

Techno-metrics: Reduces crop evapotranspiration (ET) from 1200mm (paddy) to ~450mm-62.5% water saving. Seed treatment with PGPR (Plant Growth-Promoting Rhizobacteria) enhances root biomass by 18%.

Policy Lever: Leverage NFSM (National Food Security Mission) subsidy for seed distribution. Anchor through FPOs for direct MSP procurement, locking in floor price at ₹35,000/MT.

2. Perennial Horticulture: Micro-Climatic Modulation via Mulching & Canopy Management

Intervention: Implement 6-inch organic basin mulching (paddy straw/coir pith) across 10,000 Ha of mango and other fruit orchards. Pair with regulated deficit irrigation (RDI)-apply 60% of cumulative pan evaporation (CPE) during flowering.

Techno-metrics: Reduces soil evaporative flux by 70% and maintains root-zone hydro-stability. Increases fruit TSS (Total Soluble Solids/Brix) by 2-3°, fetching Grade - A export pricing.

Policy Lever: Converge MIDH (Mission for Integrated Development of Horticulture) funds for mulching sheets (biodegradable) and micro-sprinklers.

3. Fodder Security: Precision Silage Manufacturing Hub

Intervention: Establish High-Density Fodder (HDF) blocks using CO-5 Napier / African Tall Maize. Deploy drip fertigation (150:60:40 NPK) to achieve 85-90 tons green biomass/Ha in 75 days. Encase in oxygen-barrier silage bags (strictly <5% O₂) to ensure 18-month preservation.

Techno-metrics: Ensures 15% Crude Protein (CP) retention. Mitigates the "lean-period" fodder deficit (Aug-Oct) where prices inflate by 250%.

Policy Lever: Utilize RKVY (Rashtriya Krishi Vikas Yojana) for chaff-cutters and silage balers. Connect with dairy cooperatives (Aavin) for buyback

4. Oilseed Intensification: Hydro-Priming & Wind-Pollination Management

Intervention: Deploy KCl (0.5%) osmopriming for VRI-10 Groundnut/TMV 7. Shift to paired-row sowing (30/60 cm) to optimize solar radiation interception.

Techno-metrics: Osmopriming increases germination energy by 22% under low matric potential (-1.5 MPa). Enhances Harvest Index (HI) from 0.28 to 0.35.

Policy Lever: National Edible Oil Mission (NMEO-OP) offers 60% seed subsidy. Establish forward-linkage contracts with solvent extraction units.

High-Level Decision Points

Water Budgeting: Enforce a rotational water release schedule for Tanks (using real-time IoT water-level sensors) exclusively for horticulture/fodder. Divert all canal water away from paddy/sugarcane in low-yield zones.

Convergence Matrix: Mandate a single-window clearance combining MGNREGA (desilting ponds to increase storage by 30%), PMKSY (drip kits), and Soil Health Card (deficit Zn/Boron correction to mitigate heat-stress).

Risk Mitigation: Issue a District Disaster Management (DDMA) advisory for Weather-Based Crop Insurance (WBCIS) with a modified threshold yield - ensure 100% enrolment before July 10.

Monitoring: Deploy Satellite-derived NDVI (Normalized Difference Vegetation Index) biweekly to assess crop vigor and trigger early contingency payouts
