GOVERNMENT OF TELANGANA · DEPARTMENT OF AGRICULTURE

PROJECT K-100 · KOSGI DIVISION · NARAYANPET DIST., T.G.

100 Farmers... 100 Innovations

100 మంది రైతులు – 100 వినూత్న ఆవిష్కరణలు

Unveiling the real heroes of ***Crop Diversification***



Vanakalam 2026 · 60 Success Stories | Yasangi 2026-27 · 40 Activities

STOP MONO CROPPING... PROMOTE CROP DIVERSIFICATION

Department of Agriculture · Kosgi · Maddur · Gundumal · Kothapally mandals · Kodangal Constituency · Narayanpet District, Telangana

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100 Farmers, 100 Innovations

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Unveiling the real heroes of crop diversification

VANAKALAM 2026 · 60 SUCCESS STORIES

and 40 Yasangi 2026–27 activities ahead

with a technical guide to crop diversification,
El Niño water management and the management of commercial crops

Department of Agriculture, Narayanpet District
Kosgi Division · Kosgi · Maddur · Gundumal · Kothapally mandals
Kodangal Constituency, Telangana · November 2026

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PREFACE

From the District Collector

Smt. Ch. Priyanka, IAS

Collector & District Magistrate, Narayanpet District

Narayanpet is a district of hardworking farmers, red soils and uncertain rainfall. In such conditions, improving farm productivity, conserving natural resources and reducing cultivation costs are essential for making agriculture sustainable and profitable. With this vision, K-100 (100 Farmers – 100 Innovative Agriculture Activities) was initiated in Kosgi Division to identify progressive farmers, recognise their innovative agricultural practices and document successful field-level experiences that can be replicated by other farmers. The initiative seeks to transform individual farmer innovations into a collective learning movement, encouraging the adoption of scientific, sustainable and resource-efficient farming practices.

This book showcases a wide range of agricultural innovations, including horticulture, floriculture, moisture conservation, water-efficient cultivation, mechanisation, drone-based spraying, improved sowing methods, scientific sheep rearing and farmer-led marketing initiatives. Each success story reflects practical experience, supported by farmers' own data and validated through sound agricultural practices.

At a time when climate variability and the El Niño phenomenon pose challenges to agriculture, such innovations assume greater significance. Promoting crops that require less water, improving water-use efficiency, diversifying agricultural activities and adopting climate-resilient practices will be crucial for sustaining farm incomes, particularly during the Yasangi season.

I appreciate the efforts of the Department of Agriculture, the officers of Kosgi Division and, most importantly, the progressive farmers who have come forward to share their experiences and inspire others. I hope this publication serves as a practical knowledge resource for farmers across Narayanpet district and encourages many more to adopt innovative and sustainable agricultural practices.



MESSAGE

From the District Agriculture Officer

Sri M. Sakriya Nayak
District Agriculture Officer, Narayanpet District

Extension work succeeds when a farmer sees a working example in a neighbour's field. Project K-100 builds exactly such examples: one hundred farmers, each demonstrating one innovation that others can visit, question and copy.

The sixty Vanakalam stories in this book cover new crops, horticulture, intercropping, natural farming, water management, mechanisation, livestock and farmer producer organisations. For each, the book records what the farmer did, what it cost, what it earned and what others should keep in mind. A technical guide on crop diversification, El Niño water management and crop management has been added so that the lessons can be applied on other farms.

With El Niño conditions forecast for the coming months, I urge every Agriculture Extension Officer in the district to use this book in farmer meetings at Rythu Vedikas and to help farmers plan the Yasangi season around the water they actually have. My appreciation to the Kosgi Division team for this documentation.

INTRODUCTION

Why This Book

B. Rama Krishna
Mandal Agriculture Officer, Kosgi · Project K-100



Across Kosgi Division, many farmers grow the same crop season after season. When the rain fails or the price falls, the whole year's income goes with it. Project K-100 set out to find farmers who had tried something different, to stand in their fields, to note their costs and returns, and to tell their stories so that others can follow.

Each of the 100 farmers takes up one innovation and becomes a live demonstration for the village. This book presents the 60 who completed the Vanakalam (kharif) season of 2026, and the 40 activities planned for Yasangi (rabi) 2026–27.

How the book is arranged

- **Project information:** the concept note that launched Project K-100, as approved, followed by press coverage and the launch of the project by the District Collector.
- **Sixty success stories**, one or two pages each, with the farmer's figures, a scientific note, an El Niño note and the support available.
- **Twelve best methods** from the farmers' fields, explained in a few lines each.
- **A technical guide:** why and how to diversify, managing water in an El Niño year, and managing the main commercial crops of the division.
- **The forty Yasangi activities** that come next, the lessons from the sixty stories, and a farmer index.

A word on the figures

The figures are the farmers' own, recorded during field visits, and are marked as farmer-reported. They describe one farm in one season under local conditions, and are not a guarantee for every farm.

Thanks

This work was carried out under the leadership of Smt. Ch. Priyanka, IAS, Collector & District Magistrate, Narayanpet, with the guidance of Sri M. Sakriya Nayak, District Agriculture Officer. The Mandal Agriculture Officers of Kothapally, Gundumal and Maddur, the Horticulture Officer of Kosgi Division and the Agriculture Extension Officers visited the fields, collected the data and took the photographs. The real champions are the farmers, who shared their time, their numbers and their experience.

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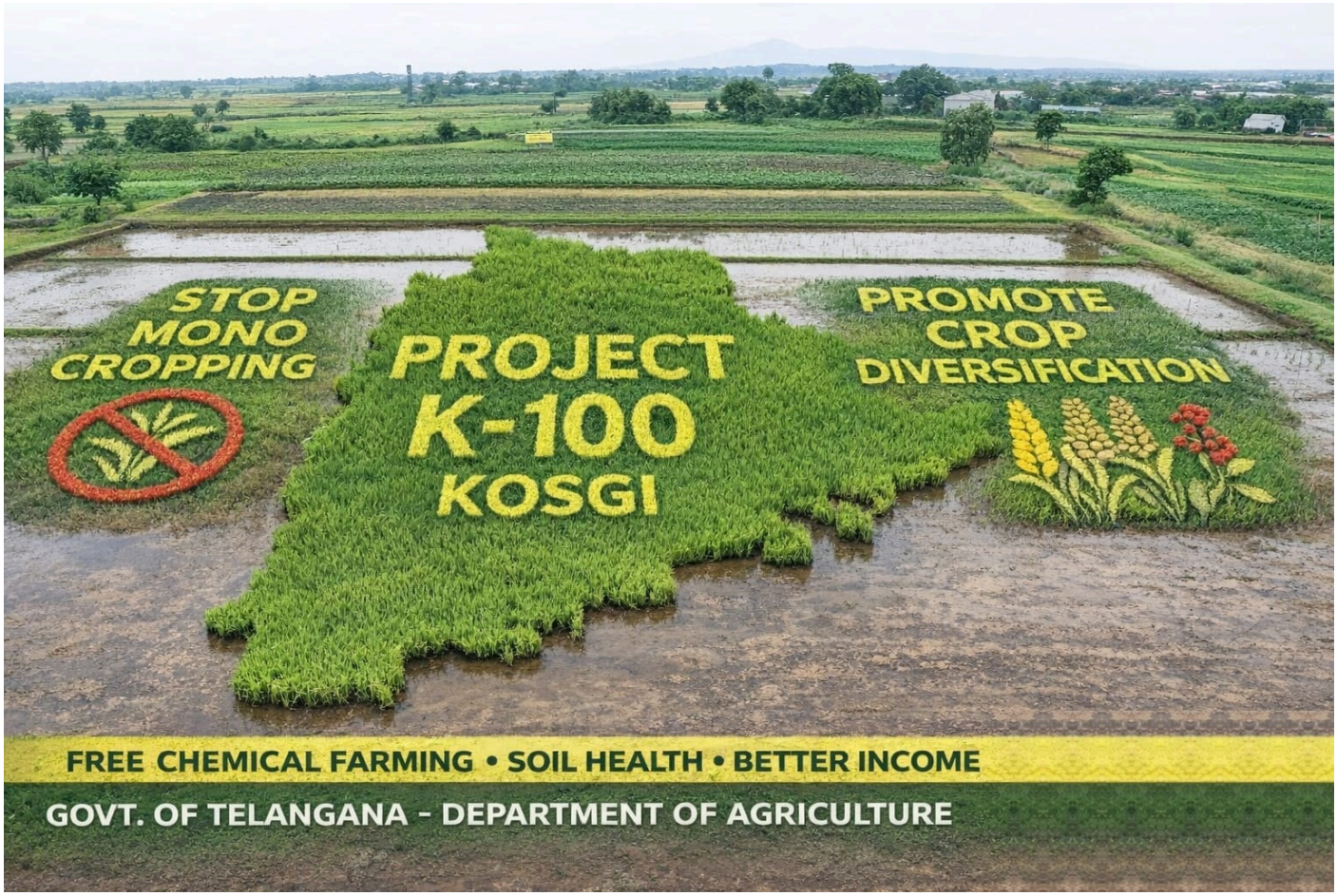
Department of Agriculture
Kosgi Division, Narayanpet District

100 Farmers – 100 Innovative Agriculture Activities (Project K-100)



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1. Concept & Vision

The “100 Farmers – 100 Innovative Activities Programme” is conceived as a flagship initiative to transform Kosgi division into a model hub of innovative, sustainable, and income-oriented agriculture.

Under this programme, each selected farmer will adopt one unique innovative activity, thereby creating 100 live demonstration models across:

Agriculture	**Horticulture**	**Floriculture**
Livestock & Fisheries	**Natural Farming**	**Agri-Business & Value Addition**

These models will act as learning centres for surrounding farmers, ensuring large-scale replication and impact.

Vision Alignment with Government Priorities

This initiative is designed in line with the Government's vision of:

✔ **Doubling Farmers' Income**

By:

- Promoting high-value crops & diversification
- Encouraging integrated farming systems
- Strengthening market linkages and value addition

✔ **Reducing Cost of Cultivation**

Through:

- Natural farming practices (Jeevamrutham, Kashayalu)
- Efficient input use (precision farming, soil health management)
- Use of locally available resources

✔ **Farmer as an Entrepreneur**

The programme recognizes the farmer as:

- An investor
- A skilled professional
- A job creator
- A producer contributing to food security

Each farmer will be promoted as an "Agri-Entrepreneur", capable of:

- Generating sustainable income
- Creating rural employment
- Adding value to agricultural produce

Special Focus: Kosgi Mandal

Kosgi Mandal holds strategic importance as it falls under the constituency of the Hon'ble Chief Minister, Shri A. Revanth Reddy, and this programme aligns with the visionary slogan:

"కోటి మంది మహిళలను కోటీశ్వరులుగా చేయడం"

(Koti mandi mahilalanu koteeswarulanu cheyadam)

Inspired by this, the Agriculture Department, Kosgi Division envisions:

"100 మంది రైతులను లక్షాధికారులుగా తీర్చిదిద్దడం"

(Transforming 100 farmers into lakh-earning model farmers)

Transformational Approach

The programme aims to:

- Convert farmers → innovators → entrepreneurs
- Create model farms in every village
- Promote income-based agriculture instead of yield-based agriculture
- Build a self-sustaining rural economy

Role of Agriculture Department (Kosgi Division)

The Agriculture Department will play a pivotal role by:

- Identifying and selecting progressive farmers
- Providing technical guidance & training
- Ensuring convergence with all line departments
- Facilitating market linkages
- Monitoring and documenting success stories

2. Innovative Activities

One hundred activities, one farmer each: sixty for the Vanakalam season (K-001 to K-060, listed overleaf) and forty for the Yasangi season (K-061 to K-100).

3. Implementation Plan

✔ Selection

- 100 farmers (1 per activity)
- Village-wise distribution

✔ Training

- Department + KVK + University
- Practical demonstrations (direct with farmers)

✔ Execution

- Input support by approaching Government / NGOs / CSR / individual persons who support agriculture
- Regular monitoring

Project K-100 (100 Activities – 100 Farmers)

STOP MONO CROPPING… PROMOTE CROP DIVERSIFICATION

VANAKALAM · K-001 TO K-060

S. NO.	CODE	ACTIVITY / TOPIC
1	K-001	Grafted Vegetables – Beera Saagu
2	K-002	Papaya Cultivation
3	K-003	Integrated Farming
4	K-004	Jasmine Cultivation
5	K-005	Kanakambaralu Cultivation
6	K-006	Basmati Rice Cultivation
7	K-007	Apple Cultivation
8	K-008	Chikkudu Saagu on Bamboo Pandals
9	K-009	Watermelon in Kharif
10	K-010	Drone Sprayer – Entrepreneur Model
11	K-011	Sericulture – Mulberry & Silkworm
12	K-012	Gummadi (Pumpkin) Saagu
13	K-013	Oil Palm Cultivation
14	K-014	Pomegranate (Commercial Fruit Crop)
15	K-015	Year-Round Brinjal (Grafting)
16	K-016	Intercrop with Cotton & Redgram
17	K-017	Twin-Row Method – Redgram Intercrop in Mango with Drip
18	K-018	Organic Vegetable Farming (Fruits, Vegetables, Paddy & Pulses)
19	K-019	AWD Method in Paddy
20	K-020	Relay Cropping (Black Gram)
21	K-021	Macadamia (High-Cost Nut)
22	K-022	Turmeric Cultivation
23	K-023	Banthi Poola (Marigold) Saagu
24	K-024	iFarmer (Farm to Home) – Marketing Model
25	K-025	Elevated Shed for Goat & Sheep Rearing
26	K-026	Chitti Muthyalu Rice
27	K-027	Leafy Vegetables – Year-Round Cultivation
28	K-028	High-Density Mango Plantation
29	K-029	Bhanginapally FPO
30	K-030	Bhusampatti FPO
31	K-031	Castor Cultivation
32	K-032	Onion & Watermelon on Raised Beds
33	K-033	Green Manure – Jeeluga
34	K-034	Farm Pond (Life-Saving Irrigation)
35	K-035	Green Chilli with Mulching & Drip
36	K-036	Dairy Farming
37	K-037	Goru Chikkudu (Cluster Bean in 10 Guntas, Year-Round)
38	K-038	Bhendi Cultivation
39	K-039	Kakara on Temporary Pandals
40	K-040	Daily Income ₹1,000–₹1,500 (Vegetables, Year-Round)
41	K-041	Natu Kolla Pempakam (Country Chicken)
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45	K-045	Yeddu Ganuga (Oil Extraction Unit) Making
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47	K-047	Oil Palm with Cotton & Redgram Intercrop
48	K-048	SNTC FPO – Dairy
49	K-049	Staking Tomato
50	K-050	Direct Paddy Seeding
51	K-051	Drum Seeder – Paddy
52	K-052	Paddy Transplanter
53	K-053	Organic Paddy Cultivation
54	K-054	BSMR Redgram Cultivation
55	K-055	Poultry-based Integrated Farming
56	K-056	Jowar Intercrop in Greengram
57	K-057	NMNF Natural Farming Clusters
58	K-058	Drumstick (Munaga)
59	K-059	Vermicomposting
60	K-060	Upanishad School – Agriculture Knowledge for the Younger Generation

YASANGI · K-061 TO K-100

S. NO.	CODE	ACTIVITY / TOPIC
61	**K-061**	Battai (Sweet Orange) – Best Agronomic Practices
62	**K-062**	Saaf Flowers (Safflower)
63	**K-063**	Sunflower
64	**K-064**	Baby Corn
65	**K-065**	Sweet Corn
66	**K-066**	Groundnut – Gypsum & Drum Rolling
67	**K-067**	Kheera (Cucumber) – Vegetables
68	**K-068**	Cauliflower
69	**K-069**	Cabbage
70	**K-070**	Mango – Organic Cultivation
71	**K-071**	Mushroom Cultivation
72	**K-072**	Crop + Dairy + Farm Pond + Fish
73	**K-073**	Fig
74	**K-074**	Polyhouse Management
75	**K-075**	Biochar Production
76	**K-076**	NMNF (Natural Farming)
77	**K-077**	Azolla for Feed
78	**K-078**	Hydroponic Grass / Fodder Unit
79	**K-079**	GPS-Based Farming Model (AI)
80	**K-080**	Custom Hiring Centre

S. NO.	CODE	ACTIVITY / TOPIC
81	**K-081**	Sheep Rearing
82	**K-082**	Beekeeping
83	**K-083**	Dragon Fruit
84	**K-084**	Solar Units – PM-KUSUM
85	**K-085**	Bio-Input Resource Centre
86	**K-086**	Millets Cultivation
87	**K-087**	Quinoa Seed Cultivation
88	**K-088**	Oil Extraction Unit (Groundnut)
89	**K-089**	Cocoa Intercrop in Oil Palm
90	**K-090**	Curry Leaf
91	**K-091**	Aakakara (Spine Gourd)
92	**K-092**	High-Value Vegetables (Carrot / Beetroot)
93	**K-093**	Medicinal Plants (Aloe Vera, Neem)
94	**K-094**	Vattiveru (Vetiver)
95	**K-095**	Kunkudu Kayalu (Soapnut) Saagu
96	**K-096**	Guava (6-Month Crop Model)
97	**K-097**	Apple Ber
98	**K-098**	Seethaphal (Custard Apple) Farm
99	**K-099**	Lily / Rose Cultivation
100	**K-100**	Model Rythu Vedika

4. Expected Outcomes

100 demonstration models	**30–100% increase in income**	**Diversification of farming**	**Employment generation**	**Strong farmer network**

5. Final Activity: Mega Kisan Mela

100 stalls (each farmer one innovation)	Live demonstrations	Buyer–seller meet	Awards & recognition

Expected Transformation

This initiative will:

- Create 100 success stories
- Inspire 1000+ farmers indirectly
- Establish Kosgi as a Model Agriculture Innovation Cluster
- Contribute significantly to rural economic development

6. Conclusion

This initiative will transform Kosgi Mandal into a Model Innovation Hub in Agriculture, integrating:

- Advanced Technology
- Traditional Agriculture
- Market-oriented farming

Submitted by

B. Rama Krishna
Mandal Agriculture Officer, Kosgi

District Agriculture Officer
Narayanpet District

Collector & District Magistrate
Narayanpet District

> *"Great projects always begin with criticism, challenges, and resistance, but true progress is achieved through patience, consistency, and dedication. Nothing is permanent except change, and those who continue to adapt, work hard, and stay focused on their mission rather than immediate results will eventually create extraordinary impact. Miracles never happen overnight; they take time, sacrifice, and silent effort before they finally emerge powerfully enough to inspire and transform the world. Today's struggles, discipline, and persistence become tomorrow's success, proving that history remembers not those who doubted, but those who never gave up."*

Website: **projectk100.com**
YouTube channel: **@ProjectK-100**

Thank you.
Project K-100 Team

In the News

The launch of Project K-100 on 15 July 2026 was reported in English and Telugu newspapers. The clippings remain the copyright of their publishers and are reproduced with acknowledgement.

Project K-100 launched in Narayanpet

The Hindu Bureau
HYDERABAD

Narayanpet District Collector Ch Priyanka inspected fields adopting modern agricultural practices at Mallareddypally village in Kosgi mandal and launched Project K-100 (100 Farmers - 100 Innovative Activities Programme), an initiative aimed at promoting crop diversification and climate-resilient farming. The project is conceived as a flagship initiative to transform Kosgi division into a model hub of innovative, sustainable, and income-oriented agriculture.

Under this programme, each selected farmer will adopt one unique innovative activity, thereby creating 100 live demonstration models across, agriculture, horticulture, floriculture, livestock & fisheries, and natural farming



Narayanpet District Collector Ch. Priyanaka interacting with farmers in Kosgi mandal on Wednesday.

During her visit on Wednesday, the Collector reviewed brinjal and green chilli cultivation under mulching, tomato cultivation using the staking method, and floriculture activities. Appreciating the farmers for adopting innovative farming techniques and modern technologies, she said such practices help improve productivity, reduce cultivation costs and enhance farm incomes. She urged farmers across the district to embrace similar methods.

Referring to the anticipated El Nino conditions, Ms. Priyanka advised farmers to cultivate alternative crops, drought-tolerant varieties and short-duration crops to minimise risks. She also stressed the importance of constructing farm ponds for rainwater harvesting and water conservation.

Later, the Collector, along with District Agriculture Officer (DAO) Sakriya Naik, launched Project K-100. Addressing farmers, she underlined the need for crop diversification and encouraged them to complement traditional crops with horticultural crops, vegetables, floriculture and other high-value crops to achieve sustainable and remunerative agriculture.

The Collector said the project would help improve farmers' incomes, promote sustainable farming practices, and strengthen climate resilience. The district administration would extend full support for the effective implementation of the programme, she said.

As part of the event, vegetable and cotton seeds were distributed to farmers. Around 120 farmers from Kosgi, Maddur, Kothapally and Gundumal mandals participated in the programme, where they were given awareness on crop diversification, climate-resilient agriculture, modern cultivation practices and the benefits of Project K-100.

The Hindu · Hyderabad · "Project K-100 launched in Narayanpet"

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విజయక్రాంతి

కోస్గిలో ప్రాజెక్ట్ కే–100

- 100 మంది రైతులు, 100 వినూత్న వ్యవసాయ కార్యక్రమాలు

హైదరాబాద్, జూలై 15 (విజయక్రాంతి): రైతుల ఆదాయాన్ని పెంచడం, వ్యవసాయాన్ని లాభసాటిగా మార్చడం, గ్రామీణ ప్రాంతాల్లో వినూత్న వ్యవసాయ విధానాలను ప్రోత్సహించడం లక్ష్యంగా నారాయణపేట జిల్లా కోస్గి డివిజన్ వ్యవసాయ శాఖ ఆధ్వర్యంలో ప్రాజెక్ట్ కే–100 పేరుతో 100 మంది రైతులు, 100 వినూత్న వ్యవసాయ కార్యక్రమాలు ప్రారంభించింది. ఈ కార్యక్రమంలో ఇప్పటికే 100 మంది ప్రగతిశీల రైతులను గుర్తించి, ప్రతి రైతుకు ఒక ప్రత్యేక వినూత్న వ్యవసాయ కార్యకలాపాన్ని కేటాయించారు. ఈ రైతులు తమ తమ గ్రామాల్లో ఆదర్శ నమూనా క్షేత్రాలను ఏర్పాటు చేసి, ఇతర రైతులకు ప్రత్యక్షంగా కొత్త సాంకేతికతలు, ఆధునిక సాగు పద్ధతులు మరియు ఆదాయాన్ని పెంచే విధానాలను పరిచయం చేయనున్నారు. ఈ ప్రాజెక్టు ద్వారా సహజ వ్యవసాయం, సేంద్రియ సాగు, డ్రోన్ పంటలు, పూల సాగు, పశుపోషణ, కోళ్ల పెంపకం, మత్స్య పెంపకం, సమగ్ర వ్యవసాయ విధానాలు, విలువ ఆధారిత ఉత్పత్తులు, ప్రత్యక్ష మార్కెటింగ్, రైతు ఉత్పత్తిదారుల సంస్థలు, వ్యవసాయ యాంత్రీకరణ, డ్రోన్ వినియోగం, నీటి సంరక్షణ, సూక్ష్మ పోషకాల వినియోగం వంటి అనేక వినూత్న అంశాలను ప్రోత్సహించనున్నారు. ప్రాజెక్టు అమలులో వ్యవసాయ శాఖతో పాటు కృషి విజ్ఞాన కేంద్రాలు, వ్యవసాయ పశ్చవిద్యాలయాలు, ఇతర అనుబంధ శాఖల సాంకేతిక సహకారం అందిస్తారు. కోస్గి మండలం మల్లారెడ్డిపల్లి రైతు వేదిక ముషీపిఫా పరిధిలో జిల్లా కలెక్టర్ సిహెచ్ ప్రియాంక బుధవారం క్షేత్ర పర్యటన చేశారు. పంటల వైవిధ్యీకరణపై రైతులకు అవగాహన పెంచేందుకు ఉద్దేశించిన ప్రాజెక్ట్ కే100 చాలా ఉపయోగకరమైందని, ఈ ప్రాజెక్ట్ కు పూర్తి సహకారం అందిస్తామని కలెక్టర్ హామీ ఇచ్చారు. కోస్గి, మద్దూర్, కొత్తపల్లి, గుండుమల్ మండలాలకు చెందిన సుమారు 120 మంది రైతులు ఈ కార్యక్రమంలో పాల్గొని పంటల వైవిధ్యీకరణ, ఆధునిక సాగు పద్ధతులు, ప్రాజెక్ట్ కే–100 ద్వారా లభించే ప్రయోజనాలపై అవగాహన పొందారు.

పంటలను పరిశీలిస్తున్న కలెక్టర్ ప్రియాంక

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ఆంధ్రప్రభ

వినూత్న వ్యవసాయ పద్ధతులతో అధిక దిగుబడులు

-ప్రాజెక్ట్‌కే- 100 పూర్తి సహకారం అందిస్తామని హామీ
-మల్‌రెడ్డి పల్లి క్షేత్ర పర్యటనలో కలెక్టర్ సిహెచ్ ప్రియాంక

కోస్గి, జూలై 15 (ఆంధ్రప్రభ): రైతులు వినూత్న వ్యవసాయ పద్ధతులను అనుసరిస్తే అధిక దిగుబడులు సాధించవచ్చు అని జిల్లా కలెక్టర్ సిహెచ్ ప్రియాంక అన్నారు. బుధవారం నాడు ముస్తఫాపేట మండలంలోని మల్ రెడ్డి పల్లి లో క్షేత్ర పర్యటనలో పాల్గొన్నారు. ఈ సందర్భంగా రైతులు అధునిక పద్ధతుల్లో సాగు చేస్తున్న మల్చింగ్ విధానంలో వంకాయ, పచ్చిమిర్చి సాగు, స్ప్రేకింగ్ విధానంలో టమాట సాగు, అలాగే పూల సాగు (ఫ్లోరికల్చర్) పాలాలను ప్రత్యక్షంగా పరిశీలించారు. రైతులు అవలంబిస్తున్న ఆధునిక సాగు విధానాలు, సాంకేతిక పరిజ్ఞానం వినియోగం, పంటల నిర్వహణ తీరు పట్ల కలెక్టర్ హర్షం వ్యక్తం చేశారు. వినూత్న వ్యవసాయ పద్ధతులను అనుసరిస్తూ అధిక దిగుబడులు సాధించే దిశగా ముందుకు సాగుతున్న రైతులను అభినందించి, ఇతర రైతులు కూడా ఇలాంటి ఆధునిక సాంకేతికతలను స్వీకరించాలని సూచించారు. అనంతరం ఎల్లినో పరిస్థితులలో ప్రత్యామ్నాయ పంటలు, కరువును తట్టుకునే రకాలు, స్వల్పకాలిక రకాలు సాగు చెయ్యాలని సూచించారు మరియు వర్షపు నీటిని ఆదా చేసుకోవడానికి ఫారం పాండ్ట తవ్వుకోవాలని సూచించారు.

పూలసాగును పరిశీలిస్తున్న కలెక్టర్, అధికారులు

రైతుకు విత్తనాలు అందజేస్తున్న కలెక్టర్

అనంతరం నిర్వహించిన ప్రాజెక్ట్ కె100 ప్రారంభోత్సవ కార్యక్రమంలో జిల్లా వ్యవసాయ శాఖ అధికారి నారాయణపేట సక్రియా నాయక్ తో కలిసి పాల్గొన్నారు. ఈ సందర్భంగా రైతులను ఉద్దేశించి మాట్లాడుతూ, సంప్రదాయ పంటలతో పాటు ఉద్యాన పంటలు, కూరగాయలు, పూల సాగు వంటి పంటల వైవిధ్యీకరణ ద్వారా రైతులు అధిక ఆదాయం పొందవచ్చని వివరించారు. రైతుల ఆదాయాన్ని పెంచేందుకు, స్థిరమైన వ్యవసాయాభివృద్ధికి ప్రాజెక్ట్ కె-100 ఎంతో దోహదపడుతుందని పేర్కొంటూ, ఈ ప్రాజెక్టు విజయవంతమైన అమలుకు జిల్లా యంత్రాంగం తరపున పూర్తి సహకారం అందిస్తామని కలెక్టర్ గారు హామీ ఇచ్చారు. అలాగే ఈ కార్యక్రమంలో కూరగాయల విత్తనాలు, పత్తి విత్తనాలు రైతులకు అందచేశారు.ఈ కార్యక్రమంలో జిల్లా గ్రంథాలయ సంస్థ చైర్మన్ వార్ల విజయ్ కుమార్, మండల కాంగ్రెస్ పార్టీ అధ్యక్షుడుయాదవరెడ్డి , ఏ డి ఏ రామ కృష్ణ , తహసీల్దార్ శ్రీనివాసులు , ఎంపీడీఓ శ్రీధర్ , వార్డు కల్చర్ అధికారి హర్ష వర్ధన్ రెడ్డి , మండల వ్యవసాయ అధికారులు రేష్మ రెడ్డి , రమేష్ , ప్రవీణ్ కుమార్ , వ్యవసాయ విస్తరణ అధికారులు ,ఉద్యాన శాఖ అధికారులు మరియు సిబ్బంది, సర్పంచులు, కొన్నిలర్లు, రైతులు తదితరులు పాల్గొన్నారు.

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www.manatelangana.news
మన తెలంగాణ

ఫ్లోరికల్చర్‌ను పరిశీలించిన కలెక్టర్

రైతు వేదిక ముషీఫాలో కలెక్టర్ పర్యటన

మన తెలంగాణ/నారాయణపేట ప్రతినిధి : రైతులు నూతన సాంకేతిక పద్ధతులతో వ్యవసాయం చేసి అధిక దిగుబడులు సాధించాలని నారాయణపేట జిల్లా కలెక్టర్ సిహెచ్ ప్రియాంక తెలిపారు. కోస్గి మండలం మల్లారెడ్డిపల్లి రైతు వేదిక ముషీఫా లో జిల్లా కలెక్టర్ బుధ వారం క్షేత్ర పర్యటన – పంటల వైవిధ్యీకరణపై రైతులకు అవగాహన, ప్రాజెక్ట్ కె100కు పూర్తి సహకారం అందిస్తామని హామీ ఇచ్చారు.
ఈ సందర్భంగా రైతులు అధునిక పద్ధతుల్లో సాగు చేస్తున్న మల్చింగ్ విధానంలో వంకాయ, పచ్చిమిర్చి సాగు, స్ప్రేకింగ్ విధానంలో టమాట సాగు, అలాగే పూల సాగు (ఫ్లోరికల్చర్) పాలాలను ప్రత్యక్షంగా పరిశీలించారు. రైతులు అవలంబిస్తున్న ఆధునిక సాగు విధానాలు, సాంకేతిక పరిజ్ఞానం వినియోగం, పంటల నిర్వహణ తీరు పట్ల కలెక్టర్ హర్షం వ్యక్తం చేశారు. వినూత్న వ్యవసాయ పద్ధతులను అనుసరిస్తూ అధిక దిగుబడులు సాధించే దిశగా ముందుకు సాగుతున్న రైతులను అభినందించి, ఇతర రైతులు కూడా ఇలాంటి ఆధునిక సాంకేతికతలను స్వీకరించాలని సూచించారు. అనంతరం ఎల్లినో పరిస్థితులలో ప్రత్యామ్నాయ పంటలు, కరువును తట్టుకునే రకాలు, స్వల్పకాలిక రకాలు సాగు చెయ్యాలని సూచించారు మరియు వర్షపు నీటిని ఆదా చేసుకోవడానికి ఫారం పాండ్ట తవ్వుకోవాలని సూచించారు.
అనంతరం నిర్వహించిన ప్రాజెక్ట్ కె100 ప్రారంభోత్సవ కార్యక్రమంలో జిల్లా వ్యవసాయ శాఖ అధికారి నారాయణపేట సక్రియా నాయక్ తో కలిసి పాల్గొన్నారు. ఈ సందర్భంగా రైతులను ఉద్దేశించి మాట్లాడుతూ, సంప్రదాయ పంటలతో పాటు ఉద్యాన పంటలు, పూల సాగు వంటి పంటల వైవిధ్యీకరణ ద్వారా రైతులు అధిక అదాయం పొందవచ్చని వివరించారు. రైతుల అదాయాన్ని పెంచేందుకు, స్థిరమైన వ్యవసాయాభివృద్ధికి ప్రాజెక్ట్ కె 100 ఎంతో దోహదపడుతుందని పేర్కొంటూ, ఈ ప్రాజెక్టు విజయవంతమైన అమలుకు జిల్లా యంత్రాంగం తరపున పూర్తి సహకారం అందిస్తామని కలెక్టర్ హామీ ఇచ్చారు. ఎల్ నినో దృష్టిలో పెట్టుకుని వేయాల్సిన పంటలపై అవగాహన కల్పించాలన్నారు. పంటల సాగు పై రైతులకు అవసరమైన డాక్యుమెంటేషన్ చేయాలన్నారు. తాను కూడా రైతు కుటుంబం నుండే వచ్చానని గతంలో పండే పంటలు నేడు పండించలేకపోతున్నా రని అన్నారు. అలాగే ఈ కార్యక్రమంలో కూరగాయల విత్తనాలు, పత్తి విత్తనాలు రైతులకు అందచేశారు. ఈ కార్యక్రమంలో వార్ల విజయ్ కుమార్ గ్రంథాలయ చైర్మన్ రఘువర్ధన్ రెడ్డి ఏ డీ ఏ రామ కృష్ణ , తహసీల్దార్ శ్రీనివాసులు , ఎంపిడిఓ శ్రీధర్ , హార్టికల్చర్ అధికారి హర్ష వర్ధన్ రెడ్డి , కొన్ని డివిజన్ పరిధిలోని మండల వ్యవసాయ అధికారులు (ఎం ఏ ఓ లు) రేష్మ రెడ్డి , రమేష్ , ప్రవీణ్ కుమార్ , వ్యవసాయ విస్తరణ అధికారులు , ఉద్యాన శాఖ అధికారులు మరియు సిబ్బంది, వివిధ గ్రామాల సర్పంచులు, కొన్నిలర్స్, రైతు సోదరులు పాల్గొన్నారు. అలాగే కోస్గి, మద్దూర్, కొత్తపల్లి, గుండుమల్ మండలాలకు చెందిన సుమారు 120 మంది రైతులు ఈ కార్యక్రమంలో పాల్గొని పంటల వైవిధ్యీకరణ, ఆధునిక సాగు పద్ధతులు, ప్రాజెక్ట్ కె 100 ద్వారా లభించే ప్రయోజనాలపై అవగాహన పొందారు.

వర్ధన్ రెడ్డి , కొన్ని డివిజన్ పరిధిలోని మండల వ్యవసాయ అధికారులు

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PROJECT INFORMATION

The Launch of Project K-100

On 15 July 2026, Smt. Ch. Priyanka, IAS, Collector & District Magistrate, Narayanpet, launched Project K-100 at the Rythu Vedika, Mushrifa, Kosgi mandal, with Sri M. Sakriya Nayak, District Agriculture Officer. About 120 farmers from Kosgi, Maddur, Kothapally and Gundumal mandals took part. They were briefed on crop diversification, climate-resilient farming and modern cultivation, and vegetable and cotton seeds were distributed. The Collector assured the full support of the district administration.



Project K-100 launch banner · AI-generated illustration



The Collector distributes seed kits to farmers at the launch.



The Collector addresses farmers at the Rythu Vedika.



The Project K-100 team presents the programme.



The Collector reviews the plan for the 100 innovations.

PROJECT INFORMATION

The Collector in the Field



Smt. Ch. Priyanka, IAS, Collector & District Magistrate, Narayanpet, with farmers and officers in a flower field at Malreddypalli, Kosgi mandal.



The Collector hears from a woman farmer about her flower crop.

WHAT SHE SAW AND ADVISED

Mulching
Brinjal and green chilli grown on mulched beds

Staking
Tomato raised on stakes for clean, healthy fruit

Floriculture
Flower crops for a daily income

El Niño advice
Alternative crops, drought-tolerant varieties and short-duration crops

Farm ponds
Harvesting rainwater for life-saving irrigation

Appreciating the farmers for adopting new methods, the Collector said such practices raise productivity, reduce costs and increase farm incomes, and urged farmers across the district to take them up.



K-001 HORTICULTURE & HIGH-VALUE AGRICULTURE

Ridge Gourd with Grafting Technology

Grafted seedlings, a pandal and drip give three harvests a year from one acre.

PEDDABAKKANOLLA NAGESH GOUD · Kommur village, Gundumal mandal, Narayanpet district, Telangana

1 acre	~3 months	3	₹12 lakh
Area under the model	Per crop cycle	Crops a year	Net a year · farmer-reported

Nagesh Goud grows his ridge gourd overhead. The vines climb a pandal, an elevated support frame, so the fruits hang clear of the soil, get more light and air, and are picked standing up.

The bigger change is underground. Each seedling is a ridge gourd shoot grafted onto a pumpkin rootstock, borrowing the pumpkin's stronger roots. He reports quicker establishment and an earlier first harvest than with ordinary seedlings.

Around this he runs a tight routine: raised beds with farmyard manure, drip lines under plastic mulch, fertiliser fed through the drip, and insect traps in place of routine spraying. Each crop takes about three months, allowing three crops a year from one acre.

> *"Grafting gives earlier yields. Mulching controls weeds and water loss. By using farm materials like FYM, physical methods such as light and pheromone traps, and good water and fertigation management through drip, we can reduce the cost of cultivation and get better yields.* — **NAGESH GOUD**

EL NIÑO-READY

Pumpkin roots, drip and mulch stretch scarce water; three short crops spread the risk.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100% subsidy. Plastic mulch: MIDH, 50% of the cost norm.

How the crop is managed

01 Grafting
Ridge gourd shoot on pumpkin rootstock for stronger roots.

02 Pandal
Vines trained overhead: more light, cleaner fruit, easy picking.

03 Raised beds + FYM
Good drainage; manure builds soil organic matter.

04 Drip + plastic mulch
Water at the roots; mulch saves moisture, stops weeds.

05 Fertigation
12:61:00 → 19:19:19 → 13:00:45 by crop stage; Mg and B added.

06 Pest traps
Farmer-built light trap; pheromone traps for fruit fly.



Nagesh Goud (right) shows his light trap: a lamp on a pandal pillar above a basin of water. Insects drawn to it at night fall in.



The pandal: granite pillars and a wire grid carry the vines above plastic-mulched beds.

The economics: one acre

FARMER-REPORTED · PENDING VERIFICATION

	PER CROP (~3 MO)	PER YEAR (3 CROPS)
Gross returns	₹6.5 lakh	₹19.5 lakh
Cost of cultivation	₹2.5 lakh	₹7.5 lakh
Net returns	**₹4 lakh**	**₹12 lakh**
Benefit–cost ratio	2.6	2.6

Net = gross − cost; B:C = gross ÷ cost. One-time pandal and drip costs not included.

SCIENTIFIC NOTE

Grafting cucurbit vegetables onto vigorous pumpkin-family rootstocks is an established technique. Results depend on the rootstock–scion pair and graft survival, which are being recorded for this farm.

Light traps are not selective and also catch beneficial insects. Pheromone traps act only on the fruit-fly species they target.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Grafted ridge gourd grown on a pandal	Three crops a year from one acre	Pandal and drip (one-time), plus crop costs	₹4 lakh net per crop; ₹12 lakh a year (farmer-reported)	Farmers with assured water and a nearby market

Plan for: up-front capital, grafting skill or a reliable nursery, daily picking labour and price swings.

Figures are farmer-reported, pending verification against sales and expense records.



K-002 CROP DIVERSIFICATION · FRUIT CROPS

Profitable Papaya Farming

Facing an El Niño season, Golla Naresh chose papaya on raised beds with drip, and now harvests every fortnight.

GOLLA NARESH · Kishan Nagar (Bhuneed) village, Kothapally mandal, Narayanpet district, Telangana

4 acres	9 months	~3 t	₹15/kg
Area under papaya	To first harvest	Every 15 days · farmer-reported	Average sale price

Golla Naresh, a young farmer, read the El Niño warnings as a signal to change. He wanted a crop in high demand that makes every drop count, and chose papaya, variety No. 15 (Mahadan), on four acres.

Papaya roots rot in standing water, so he plants on raised beds. Drip lines under plastic mulch save water and smother weeds. Farmyard manure goes in at planting; after that, nutrients are fed through the drip.

The plants flower about six months after planting and bear fruit from the ninth month. He then harvests every 15 days for about 15 months, picking before the fruit ripens and wrapping each one in newspaper so it reaches the market unbruised.

> *"Papaya is a good cash crop. Paddy, cotton and redgram give one harvest after four or five months and need more water; here we harvest every 15 days for two years. We must guard against root rot and whiteflies with the utmost care. It is in high demand, and with proper management it can double our income.* — GOLLA NARESH

EL NIÑO-READY

Drip and mulch stretch limited water; raised beds protect roots if heavy rain follows a dry spell.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%. Mulch: MIDH, 50%. New orchards: MIDH.

How the orchard is managed

01 Raised beds
Good drainage keeps root rot in check.

02 Drip + mulch
Water at the roots; mulch holds moisture and stops weeds.

03 Spacing
1.8 m × 1.8 m; about 1,000 plants an acre.

04 FYM + fertigation
Manure at planting, then nutrients through the drip.

05 Whitefly & thrips
Yellow sticky traps plus need-based sprays.

06 Root-rot care
Copper oxychloride drench; Trichoderma or Pseudomonas.



Agriculture officers inspect the crop with Golla Naresh (centre), beside a fruit-laden plant.



Raised beds under plastic mulch keep water away from the trunks and help prevent root rot.

Economics: one crop cycle (~2 yrs)

FARMER-REPORTED · PENDING VERIFICATION

	PER ACRE	4 ACRES
Yield (30 harvests)	22.5 t	90 t
Average sale price	₹15 /kg	₹15 /kg
Gross returns	₹3.4 lakh	₹13.5 lakh
Cost of cultivation (2 yrs)	₹2 lakh	₹8 lakh
Net returns	**₹1.4 lakh**	**₹5.5 lakh**
Benefit–cost ratio	1.7	1.7

From farmer-reported figures: ~3 t every 15 days (taken as the whole 4 acres) × 30 harvests at ₹15/kg; cost ₹1 lakh/acre/year × 2.

SCIENTIFIC NOTE

Papaya is very sensitive to waterlogging; raised beds and drip keep the root zone moist but never saturated. Drip makes papaya water-efficient, but it still needs regular irrigation.

Whiteflies can spread papaya leaf curl virus, so early monitoring matters. Sprays should follow label doses and the waiting period before harvest.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Papaya on raised beds with drip and mulch	Fortnightly income for about 15 months	₹1 lakh an acre a year, plus drip set-up	~3 t every 15 days; ₹5.5 lakh net over the 2-year crop (calculated)	Well-drained land, assured drip water, a fruit market in reach

Plan for: a nine-month wait for first income, root rot in wet spells, whitefly and thrips, careful handling and price swings.

Figures are farmer-reported, pending verification against sales and expense records.



K-003 INTEGRATED FARMING SYSTEMS

Fourteen Acres, Seven Incomes

Crops, orchards, livestock and home-made inputs work together, so a bad season for one never sinks the whole farm.

KHAN ASLAM DURRANI · Mukthipad village, Kosgi mandal, Narayanpet district, Telangana

14 acres Total farm	**7** Sources of income
8 cows Plus goats and sheep	**₹15 lakh** Net a year · farmer-reported

Khan Aslam Durrani will not bet his 14 acres on one crop. Paddy grows on two acres, green gram grows between his mango trees, sweet orange forms a second orchard, and dragon fruit, a high-value cash crop, is intercropped in a four-year-old mango block.

Livestock tie the farm together. Eight dairy cows, with goats and sheep, bring in regular cash. The cows eat Red Napier and hedge lucerne grown on the farm, and he makes silage so fodder lasts through dry summers.

Little goes to waste. Cow dung and crop debris become vermicompost for the fields, cutting what he spends on bought inputs. After all costs, he reports a net income of ₹15 lakh a year from the 14 acres.

> *"Farmers should not depend on a single crop. If bad weather or climate conditions hit, at least one crop or activity will still give a good income, and that gives us financial security.* — KHAN ASLAM DURRANI

EL NIÑO-READY

With seven sources of income, a dry year rarely hits them all. Silage stored in good months keeps the herd fed when fodder runs short.

SUPPORT AVAILABLE

Orchards: MIDH area expansion. Drip: TGMIP, 80–100%. Dairy, sheep and goats: Animal Husbandry Department schemes.

How the farm fits together

01 Field crops
Paddy on 2 acres; green gram between mango rows.

02 Orchards
Mango and sweet orange for long-term income.

03 Dragon fruit
High-value cash crop intercropped in young mango.

04 Livestock
8 dairy cows, goats and sheep: regular cash and manure.

05 Fodder + silage
Red Napier and hedge lucerne; silage for summer.

06 Vermicompost
Dung and farm debris recycled into manure.



Sheep and goats on Aslam's farm, fed at raised troughs: regular cash income, and manure for the fields.



Field visit: Khan Aslam Durrani (left) with a Project K-100 officer beside the dragon fruit intercropped in his mango orchard.

Economics: the whole farm

FARMER-REPORTED · PENDING VERIFICATION

Total land	14 acres
Field crops	Paddy (2 acres); green gram in mango
Horticulture	Mango, sweet orange, dragon fruit
Livestock	8 dairy cows, goats and sheep
Made on the farm	Fodder, silage, vermicompost
Net income	**₹15 lakh a year**
Per acre	≈ ₹1.07 lakh a year

Net income after all costs, as reported by the farmer; the per-acre figure is calculated from it.

SCIENTIFIC NOTE

Integrated farming spreads risk across enterprises with different seasons and markets, and recycles nutrients: dung becomes compost, compost feeds the crops, and crop residues and fodder feed the animals.

Silage is green fodder preserved by fermentation in an airtight pit or bag, bridging summer shortages. Hedge lucerne and green gram are legumes that also add nitrogen to the soil.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Crops, orchards and livestock on one farm	Steady income; less risk in a bad season	Sheds, animals and orchards	₹15 lakh net a year from 14 acres (farmer-reported)	Farms with family labour, some water and land for fodder

Plan for: labour across many activities, the cost of animals and orchards, years before fruit trees pay, and animal health care.

Figures are farmer-reported, pending verification against sales and expense records.



K-004 HORTICULTURE · FLORICULTURE

Daily Income from Ten Guntas

Jasmine on a quarter-acre brings in cash every day of the season, with less land and water than paddy.

KANCHIMPALLI SURESH KUMAR · Malreddypalli, Kosgi mandal, Narayanpet

10 guntas A quarter-acre under jasmine	**6–8 kg** Flowers a day in season
₹600/kg Minimum price · farmer-reported	**4–5** Months of picking a year

Kanchimpalli Suresh Kumar, a young farmer, grows jasmine on just 10 guntas, a quarter of an acre. Paddy needs acres of land and plenty of water; jasmine is a perennial that earns from a small plot with far less water.

Plants start flowering 1–1.5 years after planting. With timely pruning, fertiliser and water, they flower 4–5 months a year, and he expects them to keep yielding for 20–30 years.

In season he picks 6–8 kg of flowers every day. Demand for jasmine is steady, so the flowers always find buyers, and the work is light for the income it brings.

> *"As a young farmer, I get a good income from a small piece of land. The market is good at all times, and I earn without depending on anyone.* — K. SURESH KUMAR

Economics: 10 guntas, flowering season

FARMER-REPORTED · PENDING VERIFICATION

Gross a month (30 days)	₹1.08–1.44 lakh
Upkeep a month	₹20,000
Net a month	**₹0.88–1.24 lakh**
Net a season (4–5 months)	₹3.5–6.2 lakh

6–8 kg a day at ₹600/kg; upkeep includes fertiliser and sprays. Season total calculated. Planting cost not included.

SCIENTIFIC NOTE

Jasmine flowers on new shoots, so pruning after each season sets up the next flush. Buds are picked early in the morning, before they open. Prices swing with season and festivals.

EL NIÑO-READY

Jasmine needs far less water than paddy and, once established, rides out dry spells.

SUPPORT AVAILABLE

Flowers: MIDH, 40% for small and marginal farmers. Drip: TGMIP, 80–100%.

Best suited to: small farmers near a flower market. **Plan for:** a 1–1.5 year wait, daily picking, price swings.



K-005 HORTICULTURE · FLORICULTURE

Daily Income with Flowers

Kanakambaram on 10 guntas earns Raju's family about ₹1,000 a day and gives women at home steady work.

RAJU · Malreddypalli village, Kosgi mandal, Narayanpet district, Telangana

10 guntas A quarter-acre of kanakambaram	**2 months** From transplanting to flowers
1–1.5 kg Flowers a day, winter and summer	**₹1,000** A day, on average · farmer-reported

Raju of Malreddypalli grows kanakambaram, the orange crossandra flower prized for garlands, on 10 guntas. It needs little land and little water, and it gives women who stay at home daily paid work.

The plants start flowering about two months after transplanting and keep yielding for up to two years. In winter and summer he picks 1–1.5 kg of flowers every day; yields dip in the rainy season.

Suppliers pay about ₹800/kg. Strung into garlands by women at home, the same flowers fetch about ₹1,200/kg. Pests are few; the only hard part is picking every day.

> *"For a family that wants to live without working for others, kanakambaram is the best choice, in the backyard or on a small plot with little water. It gives an assured ₹1,000–1,200 every day, a great help to a small family. —* **RAJU**

Economics: 10 guntas, one year

FARMER-REPORTED · PENDING VERIFICATION

Gross a year (~8 months)	≈ ₹2.4 lakh
Sprays + fertiliser a year	₹24,000
Net a year	**≈ ₹2.16 lakh**
Set-up (one-time)	₹15,000

₹1,000 a day × ~240 days; ₹2,000 a month running cost. Set-up covers plants, drip and mulch. Family picking labour not costed.

SCIENTIFIC NOTE

Kanakambaram (Crossandra infundibuliformis) tolerates heat and needs only moderate irrigation. Flowers open in turn up each spike, so daily picking keeps the harvest steady. Wilt can strike in poorly drained soil.

EL NIÑO-READY

Kanakambaram tolerates heat and needs only moderate irrigation: a sound choice for a dry year.

SUPPORT AVAILABLE

Flowers: MIDH, 40% for small and marginal farmers. Drip: TGMIP, 80–100%.

Best suited to: families with someone at home to pick daily, on a backyard or small plot. **Plan for:** daily picking, lower yields in the rains, and replanting after two years.



K-006 CROP DIVERSIFICATION · PREMIUM RICE

From Paddy to Premium Basmati

Aromatic rice earned up to twice the net income.

KAVALI CHINNA VENKATAIAH · Nacharam, Kosgi mandal, Narayanpet

1 acre Under basmati rice	**25 qtl** Paddy harvested
12 qtl Saleable milled rice	**₹90,000** Net an acre · farmer-reported

Most paddy farmers around Kosgi grow MTU 1010, BPT 5204 or RNR 15048. On one acre, Kavali Chinna Venkataiah of Nacharam grew basmati instead: an aromatic long-grain rice that sells at a premium.

Basmati is grown like ordinary paddy, with DAP and 20:20:0:13 applied as for traditional varieties. As the plants grow vigorously, he uses less urea to avoid lodging.

He sells milled rice, not paddy: 25 quintals of paddy gave 12 quintals of rice at about ₹10,000 a quintal, against ₹3,000–3,500 for conventional paddy.

> *"Basmati is cultivated just like traditional varieties, but it grows more, so we use less urea and manage the crop better. If we mill the rice and then sell it, the income is double that of conventional paddy.* — KAVALI CHINNA VENKATAIAH

Economics: one acre, paddy vs basmati

FARMER-REPORTED · PENDING VERIFICATION

	CONVENTIONAL	BASMATI
Paddy yield	25 qtl	25 qtl
Sold as	Paddy	12 qtl rice
Price a quintal	₹3,000–3,500	₹10,000
Gross income	₹75,000–87,500	₹1,20,000
Cost of cultivation	₹30,000	₹30,000
Net income	**₹45,000–57,500**	**₹90,000**

Milling and marketing costs not included. Basmati gain: ₹32,500–45,000 an acre.

SCIENTIFIC NOTE

Excess nitrogen makes basmati lodge (fall over), hurting yield and grain quality. Milling recovery and a reliable buyer decide the final profit.

EL NIÑO-READY

Paddy is water-hungry: in a dry year, pair basmati with alternate wetting and drying (see K-019).

SUPPORT AVAILABLE

Crop advice and training through the Rythu Vedika; FPOs can help with milling and sales.

Best suited to: paddy farmers with a miller or buyer for premium rice. **Plan for:** milling, marketing and price swings.



Officers of Kosgi Division with a papaya grower during a field visit.

FROM THE FIELD

How Each Story Was Documented

1
Identify
AEOs list farmers already practising something new in each village.

2
Visit
Officers walk the field with the farmer and record the method, area and dates.

3
Record
Costs, yields and prices are noted in the farmer's own words and units.

4
Photograph
Portrait, field, method and harvest, taken on the farm.

5
Review
Each practice is checked against ICAR and PJTSAU recommendations.

6
Share
Story in print, on projectk100.com and on YouTube @ProjectK-100.

READING THE EVIDENCE LABELS

FARMER-REPORTED	Figures given by the farmer, not yet checked against records.
VERIFIED	Supported by bills, records, photographs or official data.



K-007 HORTICULTURE · EXPERIMENTAL FRUIT CROP

An Apple Orchard in Kosgi

Kodiganti Hari is testing low-chill apple varieties on the red soils of Kodangal, a fruit long thought to need Himalayan cold.

KODIGANTI HARI · Kosgi village, Kosgi mandal, Narayanpet district, Telangana

3	8 × 10 ft	₹2.5 lakh	18–24 mo
Low-chill varieties	About 480 plants an acre	To establish an acre · farmer-reported	Expected time to first fruit

Apples are usually linked with Kashmir and Himachal Pradesh, where winters are cold. Inspired by low-chill varieties grown in warmer places such as Anantapur, Kodiganti Hari decided to test them in his own fields at Kosgi.

He planted Anna as the main variety, with Dorset Golden and 999 as pollinisers, since apple flowers need pollen from a compatible variety to set fruit. Plants stand 8 ft apart in rows 10 ft apart, in pits filled with FYM, vermicompost and soil.

Water is his biggest concern: apple roots rot in wet soil, so he irrigates by drip and keeps the field well drained. The orchard is now about a year old, and he expects the first fruit 18–24 months after planting.

> *"People believe apples grow only in Kashmir and Himachal Pradesh. I wanted to see whether suitable varieties can grow in our Kosgi soil and climate. If my experiment succeeds, I hope many farmers will try new horticultural crops.* — KODIGANTI HARI

EL NIÑO-READY

Drip and mulch protect young trees in a dry year. A warm El Niño winter may cut the chill apples need to flower, so watch flowering closely.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%. Fruit area expansion: MIDH, over three years (60:20:20).

How the orchard is managed

01 Low-chill varieties
Anna, with Dorset Golden and 999 as pollinisers.

02 Pits + organics
FYM, vermicompost and soil in each pit.

03 Drip + drainage
Measured water; no waterlogging at the roots.

04 Fertigation
Water-soluble fertilisers and micronutrients by drip.

05 Root health
Trichoderma and Pseudomonas; watch for root grubs.

06 Pests + weeds
Monitor sucking pests; keep basins weed-free.



A Project K-100 field visit: Kodiganti Hari (right) beside one of his year-old apple plants.



A one-year-old low-chill apple plant under drip on Kosgi's red soil.

Economics: one acre

ESTABLISHMENT COST · ACTUAL, FARMER-REPORTED	
Plants (480 × ₹400)	₹1,92,000
Pits, planting and other work	₹58,000
Total to establish	**₹2,50,000**
FARMER'S PROJECTION · ILLUSTRATIVE, NOT A RESULT	
Productive plants (after 80 losses)	400
Fruit a plant (250 × 200 g)	50 kg
Production	20,000 kg
Gross income at ₹50/kg	₹10 lakh

Projection only: yield, fruit quality, losses and price are untested in Kosgi. Gross is not profit; running, picking, packing and transport costs come off.

SCIENTIFIC NOTE

Apples need winter cold to flower. Low-chill varieties such as Anna need far fewer cold hours than Himalayan apples, but their yield and fruit quality on the hot plains are still unproven.

Pollinisers must flower at the same time as the main variety; Dorset Golden is the usual partner for Anna. This orchard's records will help show what works here.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Low-chill apples in a hot, dry region	A new high-value fruit for local markets	₹2.5 lakh an acre to establish	Orchard one year old; first fruit expected at 18–24 months	Well-drained soil, drip water, and patience to experiment

Plan for: a high cost of plants, some plant losses, uncertain flowering in the heat, and years before any income.

Establishment cost is farmer-reported; income figures are the farmer's projection, not a harvest result.



K-008 HORTICULTURE · VEGETABLES

Beans on Bamboo, Income Every Day

A low-cost bamboo pandal, drip and a home-made bottle trap let Raghavender pick chikkudu from half an acre every day for six months.

RAGHAVENDER · Maddur village, Maddur mandal, Narayanpet district, Telangana

½ acre Under chikkudu	**₹20,000** Temporary bamboo pandal
50 kg Picked a day · farmer-reported	**180 days** Of harvest in a season

Raghavender, a young farmer from Maddur, wanted income every day, not once a season. On half an acre he grows chikkudu (dolichos bean), a creeper vegetable with steady demand in local markets.

Permanent pandals are costly, so he built a temporary one: bamboo poles about 10 ft apart in rows 6 ft apart, strung with wire. It cost about ₹20,000 for half an acre, a practical choice for farmers on leased land.

Hybrid seed, drip, mulch and fertigation keep the crop healthy, and yellow sticky traps help with sucking pests. For pod flies he hangs about 20 home-made bottle traps baited with tulsi and clove extract.

> *"Unlike cotton and paddy, vegetables give us income regularly. Every day we harvest and take the produce to market. Creeper vegetables are in demand, and with proper management farmers can earn a sustainable income.* — **RAGHAVENDER**

THE BOTTLE TRAP IN FOUR STEPS

1. Half-fill a plastic bottle with water.
2. Make two small openings in the side.
3. Add 2–3 drops of tulsi–clove extract.
4. Hang about 20 bottles across half an acre.

EL NIÑO-READY

Drip and mulch save water, and a creeper picked every day for six months spreads both income and risk.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%. Mulch: MIDH, 50%. Hybrid vegetables: MIDH, 40%.

How the crop is managed

01 Bamboo pandal
Temporary and low-cost: ₹20,000 for half an acre.

02 Hybrid seed
A high-yielding hybrid for strong establishment.

03 Drip + mulch
Water at the roots; mulch saves moisture, stops weeds.

04 Fertigation
Water-soluble fertilisers and micronutrients by drip.

05 Sticky traps
Yellow traps and need-based sprays for sucking pests.

06 Bottle traps
About 20 bottles with tulsi–clove extract for pod flies.



The bottle trap: half-filled with water and a few drops of tulsi–clove extract. Flies enter through small holes and drown.



A Project K-100 field visit: Raghavender (centre) in his chikkudu pandal.

Economics: half an acre, one season

INCOME · FARMER-REPORTED	
Daily harvest (50 kg × ₹40)	₹2,000
Gross for 180 days	₹3,60,000
COSTS	
Temporary bamboo pandal	₹20,000
Plant protection sprays	₹48,000
Fertiliser, other inputs, labour	₹52,000
Total cost	₹1,20,000
Net income	**₹2,40,000**

Based on the farmer's average harvest, price and a six-month picking season.

SCIENTIFIC NOTE

Tulsi and clove contain eugenol-type compounds that attract male fruit flies, the same principle as commercial methyl eugenol traps. Identifying the insects caught will confirm which pest the trap controls.

Sprays are the biggest single cost (₹48,000 a season), so any trap that safely reduces spraying adds directly to profit.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Temporary bamboo pandal and bottle traps	Income every day for about six months	₹20,000 pandal; ₹1.2 lakh season cost	₹2.4 lakh net from half an acre (farmer-reported)	Small or tenant farmers near a vegetable market

Plan for: daily picking labour, pest pressure on pods, and swings in vegetable prices.

Figures are farmer-reported, pending verification against sales and expense records.



K-009 CROP DIVERSIFICATION · FRUIT CROPS

Watermelon in Seventy Days

Raised beds, drip and mulch let Cheekati Krishna grow watermelon with far less water than paddy, timed for the best prices.

CHEEKATI KRISHNA · Maddur village, Maddur mandal, Narayanpet district, Telangana

2.5 acres Under watermelon	**60–70 days** From sowing to harvest
20 t An acre, expected · farmer	**₹20/kg** Average kharif price

Cheekati Krishna of Maddur grows watermelon on 2.5 acres, a short crop ready in 60–70 days. He plants on raised beds, which hold moisture and let roots spread easily, in rows 6 ft apart to give the vines room to run.

Drip lines under plastic mulch water the crop every day, while the mulch keeps moisture in and weeds out. Fertiliser goes through the drip: 12:61:0 and 28:28:0 early on, then boron and calcium at fruit set to prevent cracking.

Regular sprays keep pests and diseases in check. He times the crop to meet strong demand, and expects about 20 tonnes an acre, or 50 tonnes from his 2.5 acres.

> *"Catching the right season is the most important thing in watermelon. Around festivals like Shivaratri, demand is high. It is a short crop: the water for one acre of paddy can grow five acres of watermelon, and kharif fruit brings high returns.* — **CHEEKATI KRISHNA**

THE CROP IN SEVENTY DAYS

1
Prepare: raised beds, drip lines and mulch sheet.

2
Grow: daily drip with 12:61:0 and 28:28:0.

3
Fruit set: boron and calcium against cracking.

4
Harvest at 60–70 days, timed to demand.

EL NIÑO-READY
A 60–70 day crop on drip and mulch needs little water and can be timed to fit between uncertain rains.

SUPPORT AVAILABLE
Drip: TGMIP, 80–100%. Mulch: MIDH, 50%. Hybrid vegetables: MIDH, 40%.

How the crop is managed

01 Raised beds
Hold moisture and let roots spread easily.

02 6 ft rows
Room for the vines to run and fruit to size.

03 Drip + mulch
Daily drip watering; mulch saves water, stops weeds.

04 Early fertigation
12:61:0 and 28:28:0 through the drip.

05 Boron + calcium
Given at fruit set to prevent cracking.

06 Crop protection
Regular sprays for pests and diseases.



A Project K-100 field visit: Cheekati Krishna (centre) in his watermelon field.



Dark-skinned watermelons growing among the vines.

Economics: 2.5 acres, one crop

EXPECTED INCOME · FARMER'S ESTIMATE	
Yield (20 t × 2.5 acres)	50 t
Average price (kharif)	₹20/kg
Gross income	₹10 lakh
COSTS AND NET	
Cost of cultivation (2.5 acres)	₹3 lakh
Net income (in about 70 days)	**₹7 lakh**
Net per acre	₹2.8 lakh

Yield is the farmer's expectation; price is his kharif average. Watermelon prices change quickly.

SCIENTIFIC NOTE

Boron and calcium strengthen the fruit's cell walls. With even watering through drip, they reduce fruit cracking, a common cause of losses.

Over its short life, watermelon uses far less water than paddy, and mulch cuts evaporation further. Prices, however, can swing sharply within weeks.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Watermelon on raised beds with drip and mulch	High returns in 60–70 days with little water	₹3 lakh for 2.5 acres (₹1.2 lakh an acre)	₹7 lakh net expected from 2.5 acres	Farmers with drip, harvest labour and market links

Plan for: timing the crop to demand, sharp price swings, and fruit cracking if water or nutrients fall short.

Yield and income are the farmer's expectation for the current crop, pending harvest and sales records.



K-010 MECHANISATION · AGRI-SERVICES

Self-Employed with a Spray Drone

A ₹3.5 lakh drone lets Raju spray 20 acres a day for neighbouring farmers, easing their labour shortage and creating his own business.

RAJU · Gundumal village, Gundumal mandal, Narayanpet district, Telangana

₹3.5 lakh Invested in the drone	**20 acres** Sprayed in a day
₹500 Charged an acre	**12 litres** Spray solution an acre

Raju, an educated young farmer from Gundumal, saw farmers struggling to find labour for spraying, especially in tall crops and during pest outbreaks. He invested ₹3.5 lakh in an agricultural spray drone.

Instead of using it only on his own land, he hires it out to neighbours. The drone carries a liquid tank, precision nozzles and GPS-guided flight controls, and covers about 20 acres a day.

He charges ₹500 an acre and uses about 12 litres of spray solution an acre. The operator stays at the field edge instead of walking through the spray, though protective gear is still needed.

> *"I am an educated farmer, now self-employed with a drone sprayer. Farmers are adopting new technology because of the labour shortage. I have used that to create my own employment, I am earning well, and I want to expand further.* — **RAJU**

WHY FARMERS HIRE THE DRONE

1. Labour: no spray crew to find or pay.
2. Speed: about 20 acres a day in an outbreak.
3. Water: about 12 litres of spray an acre.
4. Reach: easier spraying in tall crops.

EL NIÑO-READY

A drone uses about 12 litres of solution an acre and covers fields fast when pests flare up after erratic weather.

SUPPORT AVAILABLE

SMAM: drone subsidy of 50% up to ₹5 lakh or 40% up to ₹4 lakh, by farmer category.

How the service works

01 Custom hiring
Spraying for neighbouring farmers at ₹500 an acre.

02 GPS flight
Guided flight paths and precision nozzles.

03 Low volume
About 12 litres of spray solution an acre.

04 Two seasons
About 60 spraying days each in kharif and rabi.

05 Upkeep
Batteries, pumps, motors and nozzles need servicing.

06 Weather
No flying in high wind or rain.



The drone sprays a paddy field while the operator guides it from the field edge.



Refilling the spray tank between flights.

Economics: the drone business

PER ACRE · FARMER-REPORTED	
Service charge	₹500
Operating and maintenance	₹200
Contribution	₹300
A YEAR · 120 DAYS × 20 ACRES = 2,400 ACRES	
Gross revenue	₹12 lakh
Operating cost	₹4.8 lakh
Annual contribution	**₹7.2 lakh**

Indicative, before depreciation, repairs and loan costs. At ₹6,000 a day, the ₹3.5 lakh drone pays for itself in about 60 working days.

SCIENTIFIC NOTE

Drone operators need a remote pilot certificate under India's Drone Rules, 2021, and should use only pesticides and doses approved for drone application.

Low-volume spraying needs correct nozzles and calibration to cover the crop well. Drift must be kept away from water bodies, beehives and neighbouring crops.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Drone spraying as a hire service	Fast spraying without a labour crew	₹3.5 lakh for the drone	₹7.2 lakh a year before depreciation (indicative)	Trained young farmers in busy farming villages

Plan for: repairs and scarce technicians, seasonal demand, weather limits, and pilot training and licensing.

Figures are indicative, based on the farmer's reported charges and working capacity.



K-011 AGRI-ENTERPRISE · SERICULTURE

A Monthly Salary from Silkworms

Two acres of mulberry and a rearing shed give Ravi a cocoon harvest, and an income, almost every month.

RAVI · Thogapur village, Kosgi mandal, Narayanpet district, Telangana

2 acres Of mulberry	**20–30 days** From worms to cocoons
₹80,000+ Income a month · farmer-reported	**15–20 yrs** Life of the mulberry

Ravi of Thogapur wanted an income that arrives every month, not once a season. Sericulture needs two things: mulberry to feed the worms and a shed to rear them. His two acres of mulberry gave their first leaves six months after planting.

He buys second-stage worms from chawki rearing centres at Suryapet, K. Samudram and Kalaburagi, and rears them through the third, fourth and fifth stages in his shed. In 20–30 days they spin cocoons on chandrikas, the spinning frames.

Mulberry is a perennial that keeps yielding for 15–20 years. Each plot gives fresh leaves about every two months, so by cutting his plots in turn he can feed a new batch of worms almost every month.

> *"Unlike other crops, sericulture gives income every month. If we also keep dairy and goats, their manure feeds the mulberry and the mulberry feeds the silkworms. It is profitable if done with patience, and the government supports it with many subsidies."*
>
> — RAVI

FROM LEAF TO COCOON

1 Plant mulberry; first leaves at 6 months.

2 Buy second-stage worms from a chawki centre.

3 Rear the third to fifth stages on mulberry leaves.

4 Worms spin cocoons on chandrikas in 20–30 days.

EL NIÑO-READY

Mulberry is a deep-rooted perennial. By the farmer's estimate, the water for one acre of paddy can irrigate five acres of mulberry, and income still comes every month.

SUPPORT AVAILABLE

Sericulture Dept.: ₹40,000 for mulberry planting, ₹2,95,890 for the rearing shed, chandrikas and trays free. Drip: Horticulture Dept. (TGMIP), as per norms.

How the rearing unit is managed

01 Mulberry garden
2 acres; leaves every 2 months for 15–20 years.

02 Chawki worms
Second-stage worms bought from rearing centres.

03 Rearing shed
Bamboo racks for the third to fifth stages.

04 Chandrikas
Frames on which the worms spin their cocoons.

05 Shed hygiene
Disinfectants keep each batch free of disease.

06 Cut in turn
Plots harvested in rotation to feed a batch monthly.



Inside the rearing shed: silkworms feeding on fresh mulberry shoots on bamboo racks.



Ravi (left) explains his rearing method during a Project K-100 visit.

Economics: two acres and one shed

EVERY MONTH · FARMER-REPORTED	
Cocoon income	₹80,000–1,00,000
Worms, mulberry upkeep, disinfectants	₹15,000
Net a month	**₹65,000–85,000**
GOVERNMENT SUPPORT · SERICULTURE DEPT.	
Mulberry establishment	₹40,000
Rearing shed construction	₹2,95,890
Chandrikas and rearing trays	Free
Drip (Horticulture Dept.)	As per norms

Net assumes ₹80,000–1,00,000 is income before costs. Actual income depends on cocoon yield and price in each batch.

SCIENTIFIC NOTE

Silkworms are very sensitive to disease and heat, so disinfecting the shed between batches prevents losses. Buying worms from chawki centres helps, because the first two stages are the most delicate.

Leaf quality decides cocoon yield. Manure from dairy and goats keeps the mulberry productive.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Mulberry and silkworm rearing for monthly income	A cocoon harvest almost every month	Shed and mulberry, largely subsidised	₹80,000–1 lakh income a month (farmer-reported)	Farmers with 2 acres, a shed and family labour

Plan for: a six-month wait for the first leaves, strict shed hygiene, daily feeding work and cocoon price swings.

Income is farmer-reported; subsidy amounts are as given by the Sericulture Department.



K-012 HORTICULTURE · VEGETABLES

A Short Crop with a Steady Market

Raised beds, drip and mulch let Thudum Hanmanthu grow pumpkin on two acres in three months, on about an hour of water a day.

THUDUM HANMANTHU · Thogapur village, Kosgi mandal, Narayanpet district, Telangana

2 acres Of pumpkin	**3 months** From sowing to harvest
1 hour Of drip a day	**200 bags** An acre · farmer-reported

Pumpkin (gummadi) sells all year, as a vegetable and for pooja and festivals. Thudum Hanmanthu of Thogapur grows it on two acres as a short, three-month crop that needs little water.

He ploughs, makes raised beds, lays drip lines and covers the beds with plastic mulch to save water and smother weeds. Rows are 6 ft apart with plants 1.5 ft apart, giving the vines room to spread. About an hour of drip a day is enough.

Virus disease, spread by sucking pests, is the main threat, so he uses yellow sticky traps and need-based sprays. Powdery mildew is sprayed as recommended, and fertiliser goes through the drip.

> *"Pumpkin is a short-duration, high-demand crop. We grow it with little water and get good yields. Farmers have to turn to cash crops that save water, and to market-oriented farming.* — **THUDUM HANMANTHU**

THE CROP IN THREE MONTHS

1
Prepare: plough, raised beds, drip, mulch.

2
Sow 6 ft × 1.5 ft; drip about 1 hour a day.

3
Protect: sticky traps and need-based sprays.

4
Harvest at about 3 months: about 200 bags an acre.

EL NIÑO-READY

A three-month crop on drip and mulch. By the farmer's account, about an hour of drip a day is enough, far less water than paddy needs.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100% subsidy by farmer category. Plastic mulch: MIDH, 50% of cost. Hybrid vegetables: MIDH area expansion, where available.

How the crop is managed

01 Raised beds
Better drainage and root growth.

02 Drip, 1 hour a day
Just enough water, straight to the roots.

03 Plastic mulch
Saves moisture and keeps weeds down.

04 Wide rows
6 ft between rows, 1.5 ft between plants.

05 Fertigation
Nutrients fed through the drip.

06 Pest watch
Sticky traps for virus-spreading sucking pests.



Thudum Hanmanthu (left) with a Project K-100 team member beside a yellow sticky trap.



A pumpkin ripening on the vine.

Economics: one acre, one crop

COSTS AN ACRE · FARMER-REPORTED	
Seed	₹15,000
Ploughing, drip and mulch	₹20,000
Fertigation, sprays and traps	₹15,000
Total cost	₹50,000
INCOME AN ACRE	
200 bags × ₹500 (minimum)	₹1,00,000+
Net in about 3 months	**₹50,000+**
Net from his 2 acres	**₹1,00,000+**

Costs taken as per acre. Labour not costed. ₹500 is the minimum price per bag.

SCIENTIFIC NOTE

Pumpkin viruses are spread by sucking pests such as aphids and whiteflies. Infected plants cannot be cured, so early control of the insects is the main defence.

Powdery mildew spreads in dry days with humid nights; fungicides should follow label doses.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Pumpkin on raised beds with drip and mulch	A cash crop in three months on little water	₹50,000 an acre, one crop	200 bags and ₹1 lakh+ gross an acre (farmer-reported)	Farmers with drip and a vegetable or festival market

Plan for: virus disease, labour at harvest, and the price per bag.

Figures are farmer-reported; subsidy rates as per current norms.



K-013 CROP DIVERSIFICATION · OIL PALM

Four Years of Care, Thirty Years of Income

Venkatayya's five acres of oil palm now yield fresh fruit bunches every month, sold at a price the government sets.

VENKATAYYA · Masaipally village, Kosgi mandal, Narayanpet district, Telangana

5 acres Of oil palm	**4 years** To the first harvests
1 tonne An acre a month · farmer-reported	**30 years** Of monthly harvests

Venkatayya of Masaipally planted oil palm on five acres. The palms take about four years to bear, but then they yield fresh fruit bunches (gelalu) every month for up to 30 years.

The key practice is ablation: pulling out the first flowers so the young palm puts its strength into stem and roots, giving a bigger tree and better yields later. In the waiting years, crops between the rows can earn extra income.

He harvests about a tonne an acre a month at a government-set price (about ₹23,500 a tonne); the collection centre pays within three days. Pests and diseases are few.

> *"If we care for the plant for four years, it will care for us, giving income every month for 30 years, like a government job. It is a hardy crop: if the rains fail one year it does not die, and we get the yield the next year. —*
> **VENKATAYYA**

THE OIL PALM YEARS

1
Year 1: plant 9 m apart, drip, intercrops.

2
Months 14–30: remove early flowers (ablation).

3
Year 4: first bunches are harvested.

4
Up to 30 years: a harvest every month.

EL NIÑO NOTE

The farmer finds palms survive a failed monsoon. But bearing palms need 150–200 litres a day, and ICAR-IIOPR advises assured irrigation.

SUPPORT AVAILABLE

NMEO-OP: planting material, about ₹4,200 an acre a year for 4 years for upkeep and intercrops, and harvesting tools. Drip: TGMIP, 80–100%.

How the plantation is managed

01 Triangular planting
9 m apart: about 57 palms an acre.

02 Ablation
Early flowers removed to build a strong palm.

03 Drip irrigation
150–200 litres a palm a day once bearing.

04 Nutrition
N, P, K and magnesium in four splits, plus FYM.

05 Intercrops
Cocoa and pepper for extra income.

06 Quick payment
Paid within 3 days at the collection centre.



Venkatayya (centre) walks his plantation with Project K-100 team members.



Fresh fruit bunches forming at the crown of a bearing palm.

Economics: a bearing garden

EVERY MONTH, 5 ACRES · FARMER-REPORTED	
Yield (≈ 1 t an acre)	≈ 5 tonnes
Price (set monthly by government)	≈ ₹23,500 a tonne
Gross	≈ ₹1,17,500
Running and transport costs	≈ ₹17,500
Net income	**≈ ₹1,00,000 a month**
ONE-TIME	
Establishment, 4 years (incl. drip)	₹60,000–70,000 an acre

Net is the farmer's figure after running and transport costs; those costs are gross minus net. Establishment cost is approximate.

SCIENTIFIC NOTE

Flowering starts 14–18 months after planting. ICAR-IIOPR advises removing these early flowers until about 2½–3 years, so the palm builds girth, roots and vigour before it bears.

Fertiliser goes in four split doses a year, with 50–100 kg of FYM a palm.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Oil palm with ablation and intercrops	Monthly income for up to 30 years	₹60,000–70,000 an acre over 4 years (approx.), largely subsidised	About ₹1 lakh net a month from 5 acres (farmer-reported)	Farmers with assured irrigation who can wait 4 years

Plan for: the establishment cost and the four-year wait (intercrops help meanwhile), and assured water every summer.

Income is farmer-reported. Establishment cost is approximate.



K-014 HORTICULTURE · FRUIT CROPS

More Fruit from Less Water

Tissue-culture plants, drip and a weed mat give Ram Chandraiah a pomegranate orchard that earns well on little water and little labour.

RAM CHANDRAIAH · Balabadraiapalle village, Gundumal mandal, Narayanpet district, Telangana

3 acres Of pomegranate	**2 years** To the first fruit
₹6–7 lakh Net a year · farmer-reported	**10 years** Of yearly harvests

Ram Chandraiah of Balabadraiapalle grows pomegranate on three acres. By his estimate, the water for one acre of paddy is enough for three acres of pomegranate, and the crop needs little labour.

He digs 2 × 2 ft pits, fills them with FYM mixed with Trichoderma and Pseudomonas, and leaves them for a month before planting disease-free tissue-culture plants. Fruit comes after two years; until then, intercrops earn extra income.

Drip supplies water and fertiliser, and FYM cuts the use of chemicals. A weed mat, bought with a 50% subsidy, keeps the rows clean. At flowering he waters carefully: enough, never too much.

> *"When water is short, farmers can go for pomegranate. It needs less labour and is in high demand. The orchard yields for 10 years, giving ₹2–3 lakh an acre every year, so farmers should move to commercial crops. —*
> **RAM CHANDRAIAH**

PROTECTING THE CROP

1
Thrips: need-based sprays.

2
Fruit moths: collected and killed at night.

3
Trap fruits: damaged fruit left on the tree draws the moths.

4
Bacterial blight: Bacillus culture, fermented 6 days with jaggery.

EL NIÑO-READY
By the farmer's estimate, the water for one acre of paddy grows three acres of pomegranate. Drip and the weed mat stretch every litre.

SUPPORT AVAILABLE
Weed mat: 50% subsidy (availed). Drip: TGMIP, 80–100%. New orchards: MIDH, 40% of cost over 3 years.

How the orchard is managed

01 Prepared pits
2 × 2 ft, FYM with Trichoderma and Pseudomonas.

02 Tissue-culture plants
Disease-free planting material.

03 Weed mat
Clean rows; bought with a 50% subsidy.

04 Drip fertigation
Water and nutrients together; FYM cuts chemicals.

05 Careful watering
Measured irrigation at flowering, never excess.

06 Intercrops
Extra income in the first two years.



Weed mat along the rows keeps weeds down and holds moisture under the trees.



Ram Chandraiah (centre) shows his fruit to Project K-100 team members.

Economics: a bearing orchard

EVERY YEAR · FARMER-REPORTED	
Income	₹10 lakh
Expenses	₹3–4 lakh
Net income	**₹6–7 lakh**
Net an acre (farmer's estimate)	₹2–3 lakh
THE ORCHARD	
First fruit	After 2 years
Productive life	About 10 years

Expenses as reported by the farmer, for 3.5 acres.

SCIENTIFIC NOTE

Bacterial blight is the most serious pomegranate disease. Bacillus subtilis is a known biological control agent; a farm-multiplied culture works best alongside clean pruning and recommended sprays.

Fruit-piercing moths feed at night, which is why night collection and trap fruits help.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Tissue-culture pomegranate with drip and weed mat	High returns on little water and labour	Establishment; weed mat 50% subsidised	₹6–7 lakh net a year (farmer-reported)	Water-short farms with drip, near a fruit market

Plan for: bacterial blight, fruit moths and thrips, a two-year wait, and careful watering at flowering.

Figures are farmer-reported.



K-015 HORTICULTURE · VEGETABLES

Brinjal All Year, Guarded by Marigold

Grafted plants and a marigold trap crop keep Nagesh Goud's brinjal bearing through the year, on two hours of drip every few days.

NAGESH GOUD · Kommur village, Gundumal mandal, Narayanpet district, Telangana

500 kg Picked a day · farmer-reported	**2 years** Of yield from one planting
2 hours Of drip every 2–3 days	**₹8.75 lakh** Net a year · farmer's calculation

Nagesh Goud of Kommur grows brinjal all year round. Each plant is a hybrid brinjal shoot grafted onto a hardy native brinjal root, which takes up more water and nutrients and gives earlier, better fruit.

Rows of marigold run through the field as a trap crop: their bright yellow flowers draw pests away from the brinjal. FYM, neem cake, groundnut cake and poultry manure feed the soil, with fertiliser through the drip.

Two hours of drip every two or three days is enough. The plants bear for two years: after the first year he cuts them back and fertilises, and fresh shoots and fruit follow.

> *"If you grow brinjal, marigold plants must be kept in the field. With good management, even at the lowest price of ₹15 a kilo, we get good profits.* — NAGESH GOUD

THE TWO-YEAR CROP

1
Plant grafted seedlings: 7 ft rows, 4 ft apart.

2
Grow marigold rows as a trap crop.

3
Harvest daily; drip 2 hours every 2–3 days.

4
After a year: cut back, fertilise, new shoots.

EL NIÑO-READY
Two hours of drip every two or three days keeps a year-round crop going, and one planting yields for two years.

SUPPORT AVAILABLE
Drip: TGMIP, 80–100%. Hybrid vegetables: MIDH area expansion, 40%, where available.

How the crop is managed

01 Grafted plants
Hybrid brinjal on a native brinjal root.

02 Marigold trap crop
Yellow flowers lure pests off the brinjal.

03 Drip
2 hours every 2–3 days is enough.

04 Organic manures
FYM, neem cake, groundnut cake, poultry manure.

05 Fertigation
Nutrients fed through the drip.

06 Pruning
Cut back after a year for a second year of fruit.

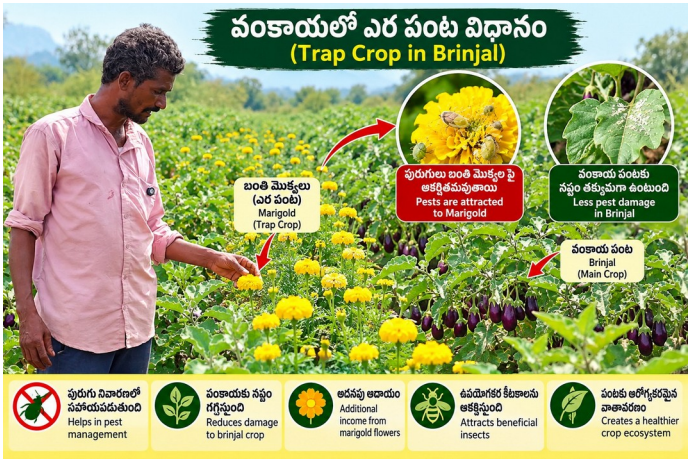


Illustration: how the marigold trap crop draws pests away from the brinjal.



Nagesh Goud (centre) explains his trap crop to Project K-100 team members.

Economics: one year

A YEAR · FARMER'S CALCULATION	
Harvest days	150
Daily harvest	500 kg
Price (his lowest)	₹15/kg
Gross income	₹11,25,000
Cost of cultivation	₹2,50,000
Net income	**₹8,75,000**

At ₹10/kg, gross would be ₹7.5 lakh, still well above costs.

SCIENTIFIC NOTE

Grafting onto vigorous native rootstocks helps brinjal resist soil-borne wilt. Marigold roots also suppress root-knot nematodes in the soil.

A trap crop draws some pests, not all. Shoot and fruit borer still needs pheromone traps and removal of damaged shoots.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Grafted brinjal with a marigold trap crop	Year-round harvest for two years	₹2.5 lakh a year cost of cultivation	₹8.75 lakh net a year at ₹15/kg (farmer's calculation)	Farmers near a daily vegetable market

Plan for: daily picking labour, brinjal price swings, and shoot and fruit borer.

Figures are the farmer's own calculation, pending sales records.



K-016 INTERCROPPING · DIVERSIFIED CROPPING

Two Crops, One Field, Less Risk

Rachuri Vinod Kumar grows redgram between his cotton rows on drip, so a bad season for one crop does not wipe out his income.

RACHURI VINOD KUMAR · Mukthipad village, Kosgi mandal, Narayanpet district, Telangana

2 acres Cotton with redgram	**2 : 1** Cotton rows to redgram rows
4 + 6 qtl Cotton + redgram an acre · farmer	**₹1.2 lakh** Net from 2 acres · farmer's estimate

Rachuri Vinod Kumar of Mukthipad grows cotton and redgram together on two acres. With El Niño threatening the rains, he wanted a second crop in the same field: if one fails, the other still pays.

After ploughing, he laid drip lines and marked the rows: two rows of cotton, then one of redgram, repeated across the field. Drip gives water at the critical stages, and boron and magnesium go through the drip, saving fertiliser labour.

Cotton's sucking pests and redgram's pod borers are kept down with need-based sprays of recommended insecticides. He reports 4 quintals of cotton and 6 of redgram an acre.

> *"Farmers have to go for intercropping. If we lose one crop, we get income from the other, and fertiliser and pesticide costs are also less.* — **RACHURI VINOD KUMAR**

SETTING UP THE INTERCROP

1
Plough, lay drip lines and mark the rows.

2
Sow two rows of cotton, then one of redgram.

3
Fertigate boron and magnesium; water at critical stages.

4
Pick cotton first; harvest redgram later.

EL NIÑO-READY

Two crops with different seasons and root depths spread the risk: if a dry spell hits cotton, deep-rooted redgram can still give a crop.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%. Redgram seed and inputs: pulses schemes of the Agriculture Dept., where available.

How the intercrop is managed

01 2 : 1 row pattern
Two cotton rows to every redgram row.

02 Drip
Water given at the critical crop stages.

03 Fertigation
Boron and magnesium through drip; less labour.

04 Cotton pests
Need-based sprays for sucking pests.

05 Redgram pests
Sprays for pod borers at flowering and podding.

06 Staggered harvest
Cotton picked first; redgram matures later.



Open cotton bolls beside flowering redgram in the intercropped rows.



Rachuri Vinod Kumar (left) explains his intercrop during a Project K-100 visit.

Economics: one season

PER ACRE · FARMER'S ESTIMATE	
Cotton	4 quintals
Redgram	6 quintals
Cost of cultivation	₹20,000
HIS 2 ACRES	
Gross income	₹1,60,000
Cost of cultivation	₹40,000
Net income	**₹1,20,000**

Gross works out to about ₹8,000 a quintal across both crops. Cost covers land preparation, drip, fertiliser and sprays.

SCIENTIFIC NOTE

The crops share the field well: redgram's deep taproot draws water from lower soil, it adds nitrogen as a legume, and it keeps growing after cotton picking. A land equivalent ratio above 1.0 means the intercrop out-yields the same land split between sole crops.

Spray only recommended insecticides at label doses, rotating chemical groups to slow resistance.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Cotton with redgram in a 2 : 1 row pattern on drip	Two incomes from one field; less risk	₹20,000 an acre	₹1.2 lakh net from 2 acres (farmer's estimate)	Cotton farmers wanting a safety net in dry years

Plan for: managing the different pests of two crops, and labour at cotton picking.

Yields and income are the farmer's estimate for this season, pending sales records.



K-017 INTERCROPPING · PULSES IN ORCHARDS

Twin Rows Double the Redgram

Dibbled twin rows on low-cost drip, sown between his mango trees, give C. Abdul Lateef about 12 quintals of redgram an acre.

C. ABDUL LATEEF · Nagasanpally village, Kosgi mandal, Narayanpet district, Telangana

25 ft Between mango rows	**2,000** Redgram plants an acre
12 qtl An acre (usual: 5–6) · farmer	**₹80,000** Net an acre · farmer-reported

C. Abdul Lateef of Nagasanpally grows mango on four acres, with rows 25 ft apart. Rather than leave that space empty, he sows redgram in it.

He dibbles the seed in twin rows: pairs of rows with a wide gap between each pair. Air and sunlight reach every plant, canopies grow bigger with more side branches, and spraying is easy. He keeps about 2,000 plants an acre.

Water matters most in redgram, so he waters through a low-cost drip and keeps pests under control. He now harvests about 12 quintals an acre, against 5–6 quintals in the usual method.

> *"In redgram, the spacing between rows plays a major role. With good spacing, air and sunlight reach the plants, the canopy grows bigger with many side branches, and with drip watering we get higher yields.* — C. ABDUL LATEEF

THE TWIN-ROW METHOD

1. Lay low-cost drip in the mango interspace.
2. Dibble seed in twin rows, wide gaps between pairs.
3. Keep about 2,000 plants an acre.
4. Water at flowering and podding; spray as needed.

EL NIÑO-READY

Redgram is a hardy crop, and low-cost drip waters it at flowering and pod filling, so yields hold even when the rains fall short.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%. Redgram seed and inputs: pulses schemes of the Agriculture Dept., where available.

How the intercrop is managed

01 Twin rows
Paired rows with wide gaps between the pairs.

02 Dibbling
Seed placed by hand: less seed, an even stand.

03 Low-cost drip
Water at flowering and pod filling.

04 Light and air
Bigger canopy and more side branches.

05 Easy spraying
Gaps between pairs let the sprayer through.

06 Mango interspace
Uses the 25 ft between mango rows.



Flowering redgram in twin rows between the mango trees.



Inside a twin row: room and light around each plant.



C. Abdul Lateef (right) with a Project K-100 officer on a field visit.

Economics: one season

PER ACRE · FARMER-REPORTED	
Twin-row method	12 quintals
Usual method	5–6 quintals
Cost (seed, drip, fertiliser, sprays)	₹20,000
Net income	**₹80,000**
HIS 4 ACRES · CALCULATED	
Net income	**≈ ₹3,20,000**

Implied gross is about ₹1 lakh an acre, or about ₹8,300 a quintal. Cost covers seed, drip, fertiliser and sprays.

SCIENTIFIC NOTE

In redgram, most pods form on the side branches, so wider spacing that lets each plant branch out raises the yield per plant. Drip at flowering and pod filling, the most water-sensitive stages, protects that yield.

Intercrops suit a mango orchard until its canopy closes; redgram also adds nitrogen as a legume.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Twin-row dibbled redgram on drip in a mango orchard	About double the usual redgram yield	₹20,000 an acre	12 qtl and ₹80,000 net an acre (farmer-reported)	Orchard farmers with wide spaces between trees

Plan for: the mango canopy closing in over the years, pod borer at flowering, and drip upkeep.

Yields and income are farmer-reported, pending sales records.



K-018 NATURAL FARMING · FAMILY NUTRITION

A Farm That Feeds the Family First

Vegetables, fruits, grain, pulses and milk, all grown without chemicals, save Nandigama Chinna Reddy's family ₹25,000–30,000 a month.

NANDIGAMA CHINNA REDDY · Chennaram village, Kosgi mandal, Narayanpet district, Telangana

19+ Crops for the family table	**Zero** Chemical fertilisers or pesticides
₹25–30k Saved a month · farmer's estimate	**Desi cows** For milk and natural inputs

Nandigama Chinna Reddy of Chennaram grows nearly everything his family eats. Vegetables, leafy greens, fruit trees, paddy, redgram and green gram share his farm, and desi cows give milk.

He uses no chemical fertiliser or pesticide. Dung and urine from his cows become ghana jeevamrutham, drava jeevamrutham and herbal kashayalu, all made on the farm. Only seeds and saplings are bought.

By his estimate, the family saves ₹25,000–30,000 a month on food and eats fresher produce. He urges every farmer to set aside about 10 guntas for a family garden like his.

> *"I am 60 years old and have never been to hospital. Health is more important than income. Farmers who feed the nation must take care of their own health, with balanced food from dairy, pulses and fruits. —*
> **NANDIGAMA CHINNA REDDY**

HIS MODEL FOR A 10-GUNTA FAMILY GARDEN

1 Vegetables and leafy greens for daily meals.

2 Fruit trees along the borders.

3 Grain and pulses in season.

4 A desi cow for milk and natural inputs.

EL NIÑO-READY

A farm of many crops never fails all at once. If one suffers in a dry spell, others still feed the family, and manure-rich soil holds moisture longer.

SUPPORT AVAILABLE

Natural farming: National Mission on Natural Farming, where available. Fruit plants: MIDH. Drip: TGMIP, 80–100%.

How the farm is managed

01 Vegetables
Chilli, tomato, brinjal, chikkudu, drumstick.

02 Leafy greens
Palak, coriander, gongura, amaranth.

03 Fruit trees
Coconut, fig, custard apple, ber, sapota, citrus.

04 Grain and pulses
Paddy, redgram and green gram.

05 Desi cows
Milk for the family; dung and urine for inputs.

06 Home-made inputs
Ghana and drava jeevamrutham, kashayalu.



His desi cows give milk for the family and dung for the farm's natural inputs.



Nandigama Chinna Reddy (seated, second from right) with the Project K-100 team, fruit from his farm on the bench.

Economics: what the farm saves

EVERY MONTH · FARMER'S ESTIMATE	
Food the family no longer buys	**₹25,000–30,000**
WHAT HE BUYS	
Seeds and saplings	Yes
Chemical fertiliser	None
Chemical pesticide	None
Manures and pest sprays	Made on the farm

Savings are the farmer's estimate of the market value of food his family no longer buys.

SCIENTIFIC NOTE

Jeevamrutham is a fermented mix of cow dung, cow urine, jaggery, pulse flour and soil, used in natural farming to build up soil microbes. Kashayalu are herbal extracts used to deter pests.

Growing many crops spreads harvests across the year and gives the family a varied diet.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
A chemical-free farm that feeds the family	Healthy food and big savings at home	Seeds and saplings only	₹25,000–30,000 saved a month (farmer's estimate)	Every farm family: start with 10 guntas

Plan for: daily care of many small crops, making inputs regularly, and looking after the cows.

Savings are the farmer's own estimate.



K-019 CLIMATE-SMART · WATER SAVING

A Pipe That Tells When to Water

Letting the paddy field dry between irrigations saves water without losing the crop.

VENKATAIAH · Chennaram, Kosgi mandal, Narayanpet district

30 cm Perforated PVC pipe	**15 cm** Set below the soil
–15 cm Water level that calls for irrigation	**About half** Water saved · farmer's estimate

Paddy fields around Kosgi usually stay flooded until harvest, which a borewell struggles to sustain in a dry year. Venkataiah of Chennaram switched to alternate wetting and drying (AWD), irrigating only when the crop needs it.

His gauge: a 30 cm PVC pipe, holed all around its lower half, set 15 cm into the soil with the soil inside scooped out.

Water seeps in through the holes, so the level in the pipe matches the water at the roots. When it falls about 15 cm below the soil, he irrigates the field back to about 5 cm. By his estimate, he now uses about half the water.

RULE OF THUMB *Irrigate when the water in the pipe falls 15 cm below the soil; stop when about 5 cm stands above it.*

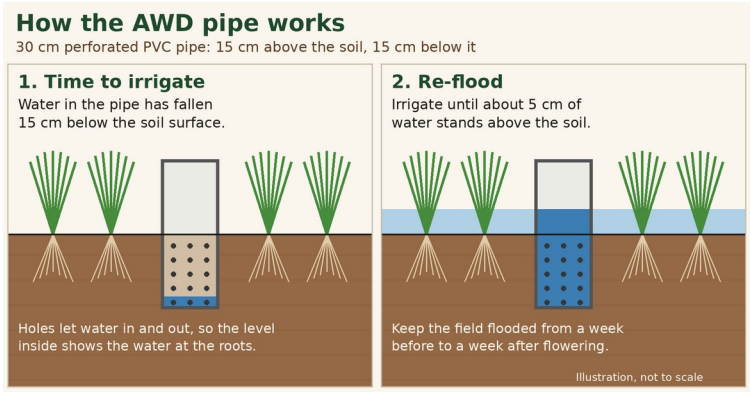


Illustration: the two stages of safe AWD.

SCIENTIFIC NOTE

Rice roots still find water down to about 15 cm, so the crop is not stressed. ICAR-NRRI reports 15–40% water savings with AWD, and 15–25% at this safe level with no yield loss. Fewer floods also mean less methane.

EL NIÑO-READY

When rains fail, every irrigation saved stretches the borewell further.

SUPPORT AVAILABLE

The pipe costs very little. Training and AWD demos via the Agriculture Dept. and KVK.

Best suited to: level paddy fields on borewell or tank water. **Plan for:** checking the pipe every few days; avoid on sandy, fast-draining soils.



K-020 RELAY CROPPING · RICE-FALLOW PULSES

A Second Crop From Leftover Moisture

Blackgram sown into the standing paddy.

KADAPANI SANGAPPA · Ekkamade, Kothapally mandal, Narayanpet

15 days Sown before the paddy harvest	**8 kg** Seed an acre · double the usual
Zero Ploughing before sowing	**Free seed** Under the Pulses Mission

After the paddy harvest, most fields around Kothapally lie empty as the soil dries. About 15 days before his paddy is cut, Kadapani Sangappa of Ekkamade broadcasts blackgram into the standing crop.

The seedlings grow on without ploughing or irrigation. He sows 8 kg an acre, double the usual 4 kg.

His seed came free under the Mission for Aatmanirbharta in Pulses.

> *"With this method we get the blackgram crop 15 days earlier and use the moisture left in the paddy field. Ploughed back in after harvest, the plants add organic carbon and nitrogen, as pulses are leguminous crops. —*
> **KADAPANI SANGAPPA**

HOW RELAY SOWING WORKS



SCIENTIFIC NOTE

Seed sown into the moist field germinates before the topsoil dries. Studies sow 7–10 days before harvest, at higher seed rates.

EL NIÑO-READY

Relay sowing uses moisture already in the soil, so a pulse crop needs little or no extra water.

SUPPORT AVAILABLE

Seed given free under the Mission for Aatmanirbharta in Pulses; urad bought at MSP.

Best suited to: paddy on moisture-holding soils. **Plan for:** weeds, uneven germination and combine-harvester damage.



K-021 EXPERIMENTAL TREE NUT

Macadamia: King of Nuts

Macadamia on drip, years from its first harvest.

KODIGANTI HARI · Kosgi village, Kosgi mandal, Narayanpet

108 plants An acre, at 20 × 20 ft on drip	**₹300–5,000** Cost of one plant
4–5 years To first harvest (grafted plants)	**Not yet** Harvested · experimental stage

Most farmers plan around the next season. Kodiganti Hari is planning for the next decade: on his red-soil field he has planted macadamia, a premium tree nut from Australia.

No one around Kosgi has grown it, and it has not yet fruited here. Hari is testing it at his own risk, so others can watch before they invest.

His plants stand 20 feet apart on drip, 108 to an acre. They cost ₹300 to ₹5,000 each; in his experience the costlier grafted ones bear sooner.

WHY HE CHOSE IT

1. *A hardy tree that manages on little water once established.*
2. *The nuts keep well, so he can wait for a good price.*
3. *A high-value crop that pays on a small area.*



Young macadamia plant on drip.

What he has, and what he expects

SO FAR · FARMER-REPORTED	
Spacing	20 × 20 ft · 108 plants an acre
Planting material	₹300–5,000 a plant
HIS EXPECTATION AT FULL BEARING · NOT A RESULT	
Nuts a tree	About 10 kg
Price	About ₹1,200 a kg
Value a tree	**About ₹12,000 a year**

Unshelled nuts fetch ₹600–1,200 a kg in Bengaluru, by grade. Area, plant count and total cost to be verified.

SCIENTIFIC NOTE

Grafted plants bear in 4–5 years; seedlings take up to 15. In Tiptur, Karnataka, trees give 15–20 kg by year 5.

EL NIÑO-READY

Once established, the tree copes with less water. Drip and mulch carry young plants through dry spells.

SUPPORT AVAILABLE

Drip: TGMIP, 80–100%.

Best suited to: spare land, assured water, patience. **Plan for:** a 4+ year wait, costly plants, a thin market, nut borers and mites.



K-022 ORGANIC SPICES · EXPERIMENTAL

Golden Spice, the Organic Way

Kothapally's first turmeric crop, still in the field.

V. RAMA KRISHNA · Peddapur village, Kothapally mandal, Narayanpet

Organic No chemical fertiliser or pesticide	**7–9 months** Crop duration, planting to harvest
10 guntas Trial area · on drip	**Not yet** Harvested or sold · trial stage

Turmeric is Telangana's golden spice, but it is grown mostly around Nizamabad, far from Kothapally. V. Rama Krishna of Peddapur, an organic farmer, is testing it on 10 guntas, to see how it performs under the field conditions of Kothapally.

Turmeric suits organic care: it feeds well on manure and compost, and mulch keeps its soil soft and moist.

The crop is on drip and still in the field; nothing has been sold yet. Its first harvest will show what the soils of Kothapally can give, and whether others should follow.

WHAT HIS TRIAL WILL SHOW

1. *What turmeric yields on local soils.*
2. *Whether organic care keeps rot and borers in check.*
3. *Cost, curing and price for a new grower here.*



Turmeric on drip in his 10-gunta trial plot, Peddapur.

How turmeric is grown

RECOMMENDED PACKAGE (ICAR-IISR) · NOT HIS RESULT	
Planting	With the first monsoon showers
Beds	1 m wide, 50 cm apart
Seed rhizomes	About 1,000 kg an acre
Manure	FYM or compost, 12–16 t an acre
Mulch	Green leaves at planting, 45 and 90 days
Harvest	7–9 months, when leaves dry
Average yield	**8–10 t fresh rhizomes an acre**

Dried turmeric fetched farmers about ₹18,000–19,000 a quintal in 2025. His trial covers 10 guntas.

SCIENTIFIC NOTE

Rhizomes are boiled and sun-dried (cured) before sale. Trichoderma on seed rhizomes helps prevent rot.

EL NIÑO-READY

Mulch holds soil moisture and drip stretches water, but a 7–9 month crop needs assured irrigation.

SUPPORT AVAILABLE

National Turmeric Board, Nizamabad: seed, technology, marketing. Drip: TGMIP, 80–100%.

Best suited to: well-drained soils with assured water. **Plan for:** seed cost, curing, 18 months to organic certification.



Festival Flowers in the Orchard

Marigold in the gaps, timed for the festivals.

SURESH · Bhogaram village, Gundumal mandal, Narayanpet

₹30,000 Cost of the marigold crop	**₹1.3 lakh** Flower sales
₹1 lakh Net · farmer-reported	**2 months** From planting to income

Suresh, a young farmer of Bhogaram, once grew only paddy, cotton and redgram. On the advice of agriculture officers, he planted marigold in the empty rows of his sweet orange orchard.

He grows the 'Vakal' variety on drip, with fertigation and recommended pest sprays.

He spent ₹30,000 and sold flowers worth ₹1,30,000: about ₹1 lakh net in two months, from space that earned nothing before.

> *"We have to plan the crop two months before Dasara, Deepavali and the Ayyappa Swamy pooja in Karthika masam. Then marigold is in high demand, and within two months we get a good income.* — **SURESH**



Marigold between the sweet orange rows.

Economics: the marigold intercrop

ONE CROP, ABOUT 2 MONTHS · FARMER-REPORTED	
Grown as	Intercrop in sweet orange
Cost of cultivation	₹30,000
Gross income	₹1,30,000
Net income	**₹1,00,000**
Benefit–cost ratio	4.3

Orchard costs and income not included.

SCIENTIFIC NOTE

Pinching the main shoot about a month after transplanting gives more branches and flowers. Marigold roots also suppress root-knot nematodes.

EL NIÑO-READY

A short crop on drip needs little water and earns from the orchard even in an uncertain year.

SUPPORT AVAILABLE

Flowers: MIDH, 40% for small and marginal farmers. Drip: TGMIP, 80–100%.

Best suited to: orchards with drip, near a flower market. **Plan for:** festival timing, daily picking, post-festival prices.

THE REAL HEROES

Faces of Project K-100

Every face on this page belongs to a farmer who tried something new on their own land, and was willing to share what it cost and what it earned.



60
Vanakalam stories in this book

4
mandals: Kosgi, Maddur, Gundumal, Kothapally

40
more activities planned for Yasangi



K-024 MARKETING INNOVATION · PROPOSED MODEL FOR GOVERNMENT

iFarmer: From Farm to Home

Village farmer groups selling straight to town consumer groups.

5 → 2	Next day	2 groups	Pilot
Middle layers, farmer to consumer	From order to doorstep	Farmers in villages, consumers in town	Proposed model for a pilot

THE PROBLEM

Between a vegetable grower in Kosgi and a family in town stand many hands: mandis, agents, wholesalers and retailers, **each adding a margin.**

The farmer has **no say in the price**, the buyer cannot tell where food comes from, and produce is **lost at each transfer**. Farmers leaving monocropping need **an assured market.**

THE IDEA

iFarmer, an idea from a team of agricultural graduates, joins the two ends. **Farmers form groups in each village; consumers form groups in town.**

Produce is graded and packed near the farm and **delivered the next day**, paid on delivery. With demand known in advance, **groups can plan what to sow.**

HOW THE CHAIN CHANGES

TRADITIONAL CHAIN

Farmer → Local mandi → City mandi → Agent → Whole-saler → Retailer → Consumer

5 middle layers, each adding a margin and handling

iFARMER CHAIN

Village farmer group → Village centre (sort, grade) → Town hub (pack, deliver) → Town consumer group

Illustration based on the iFarmer plan

EL NIÑO-READY

Assured buyers let groups stagger short, low-water vegetables, so one dry spell does not take a season's income.

SUPPORT AVAILABLE

FPO scheme: up to ₹18 lakh per FPO over 3 years. AIF: 3% interest subvention on loans up to ₹2 crore for pack houses.

How the model works

THE BIG IDEA ***Farmers grow what the town has already ordered.***

01 Farmer groups
Organise growers in each village into groups, later an FPO.

02 Crop planning
Sow to match orders, staggered so supply stays steady.

03 Village centre
Collect, sort and grade; supply inputs and training.

04 Town hub
Pack, brand and barcode; hold 2–3 days' stock.

05 Consumer groups
Orders by phone, message or the field executive.

06 Next-day delivery
Fresh, packed produce to the door; pay on delivery.



Illustration based on the iFarmer plan

Who gains

Farmers	An assured, fair price at the farm gate; time to focus on growing.
Consumers	Fresh, graded, traceable vegetables at fixed prices, delivered.
Kiranas, vendors	Packed produce to sell: extra income at low risk.
Rural youth	Jobs as marketing and delivery executives.
Government	A working market link for every crop it promotes.

PROPOSED PILOT FOR KOSGI DIVISION

1. Link one cluster of vegetable villages to one town.
2. Agriculture Department mobilises groups, plans crops, trains.
3. Register the group as an FPO under the 10,000 FPO scheme.
4. Build the village centre and town hub with AIF loans.
5. Track farmer's share of the price, wastage and members; scale up if it works.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Farmer groups selling direct to consumer groups	Fairer prices for farmers, fresher food for towns	Centre, hub, vehicle, call centre: to be costed	Proposed; to be piloted and measured	Vegetable clusters within reach of a town

Plan for: perishable produce, steady supply all week, working capital to pay farmers promptly, uniform grading, and competition from supermarkets.

A proposed model. Illustrations are not photographs.



K-025 LIVESTOCK · SHEEP AND GOATS

A Flock Raised Off the Ground

An elevated shed with its own feed store.

RAGHAVENDER REDDY · Mushrifa village, Kosgi mandal, Narayanpet

200 100 goats and 100 sheep	**₹10 lakh** Cost of the shed · farmer-reported
2 workers Enough for 200 animals, he says	**Feed chamber** His own addition

Most flocks around Kosgi sleep on bare ground, in mud and urine through the monsoon. Raghavender Reddy of Mushrifa spent about ₹10 lakh on a shed raised above the ground on a slatted floor.

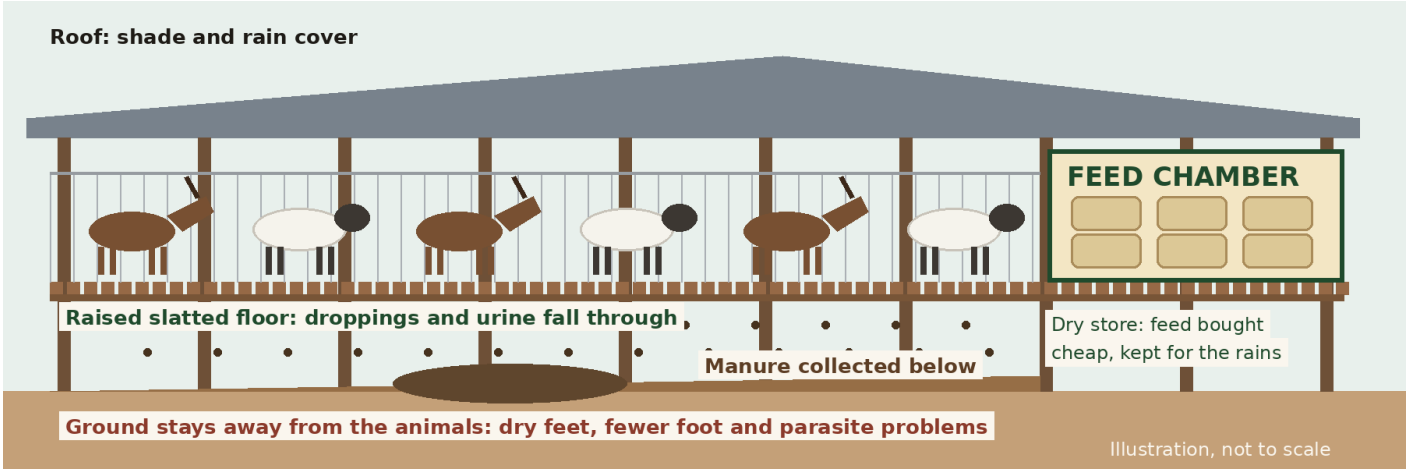
Droppings and urine fall through the gaps, so the animals' feet stay dry, disease stays down and manure is easy to collect below.

It now holds 100 goats and 100 sheep. Feeding and cleaning are simple: by his account, two workers can manage 200 animals.

HIS OWN ADDITION: A FEED CHAMBER

A closed store inside the shed keeps feed dry through the rains. He buys when prices are low and stores it, so the flock is fed even when fodder is scarce.

INSIDE THE ELEVATED SHED



SCIENTIFIC NOTE

Slatted floors are best 1–1.5 m high with gaps of about 1.5 cm. Kids on raised floors pick up far fewer gut parasites from the soil.

EL NIÑO-READY

The feed chamber is drought insurance: feed bought cheap and kept dry carries the flock through a failed fodder season.

SUPPORT AVAILABLE

NLM: 50% capital subsidy, up to ₹10 lakh for a 100 + 5 breeding unit.

Best suited to: flocks of 50 or more where labour is scarce. **Plan for:** upfront cost, strong slats, regular cleaning below.



K-026 CROP DIVERSIFICATION · PREMIUM RICE

Small Pearls, Bigger Profits

A fragrant Telangana landrace earned twice the net of regular paddy.

THUNKI ANIL · Kosgi village, Kosgi mandal, Narayanpet

15 qtl Yield an acre	**₹7,500** Price a quintal · farmer-reported
₹72,500 Net an acre	**180 days** Crop duration

Most paddy farmers around Kosgi grow MTU 1010 or RNR 15048. Thunki Anil grows Chitti Muthyalu, "little pearls": a short-grain, fragrant landrace of Telangana that buyers seek out.

It takes about 180 days, but is otherwise grown just like regular varieties.

His 15 quintals an acre sold at ₹7,500 a quintal: ₹1,12,500 against costs of ₹40,000, a net of ₹72,500, about twice what regular varieties earn him.

THE NEXT STEP: SELLING SEED

Sold as seed at ₹150 a kg, twice the grain price, the same harvest could earn much more.

Economics: one acre of Chitti Muthyalu

ONE ACRE, ONE CROP · FARMER-REPORTED	
Yield	15 quintals
Price	₹7,500 a quintal
Gross income	₹1,12,500
Cost of cultivation	₹40,000
Net income	**₹72,500**
Benefit–cost ratio	2.8
IF SOLD AS SEED · FARMER'S ESTIMATE	
Seed price	₹150 a kg (₹15,000 a quintal)

For comparison, the 2026–27 MSP for common paddy is ₹2,441 a quintal.

SCIENTIFIC NOTE

Chitti Muthyalu is a recognised landrace of Telangana, valued for aroma and for high zinc in the polished grain. In national trials it averaged about 36 quintals a hectare, close to his 15 an acre.

PJTSAU's Rajendranagar Vari-3 has similar grain, with higher yield and a shorter plant.

EL NIÑO-READY

A 180-day paddy needs water for longer. In a dry year, pair it with alternate wetting and drying (see K-019).

SUPPORT AVAILABLE

Crop advice through the Rythu Vedika; FPOs can help with milling, branding and sales.

Best suited to: farmers with assured water and a buyer for fine rice. **Plan for:** a long crop, lodging in tall plants, building a seed market.



K-027 HORTICULTURE · LEAFY VEGETABLES

Ten Minutes of Rain, Income Every Day

Leafy vegetables, sown 10 guntas at a time and watered by a rain pipe, bring in cash all year.

AVUTI MANIKYAPPA · Mungimalla village, Kosgi mandal, Narayanpet

₹1,500+ Sales a day; up to ₹5,000 · farmer-reported	**₹45k–1 lakh** Sales a month, by season
10 minutes Rain-pipe watering a day	**About 30 days** Sowing to first cutting

Avuti Manikyappa of Mungimalla grows leafy vegetables on 1 acre 10 guntas, but never all at once. He sows 10 guntas, then the next 10, then the next, so one block is always ready to cut.

The greens are ready about a month after sowing, and he sells them at the local market every day of the year.

THE MAIN CHALLENGE: WEEDING

Weeds grow as fast as the greens, and in closely sown beds they must be pulled out by hand.

His key technique is water. A rain pipe sprays fine drops like rain, thumparlu, for about 10 minutes a day: enough for the crop, gentle on the tender leaves.

> *"Leafy vegetables give a crop a month after planting. I sow in rotation, so I earn every day of the year. The only difficulty is picking and tying. With patience, a small piece of land and ten minutes of watering with the rain pipe give ₹50,000 to ₹1 lakh a month.* — **AVUTI MANIKYAPPA**

THE ROTATION: 10 GUNTAS AT A TIME

1
Sow the first 10 guntas.

2
Sow the next 10 guntas while the first grows.

3
Cut the first block about a month after sowing.

4
Re-sow it and move on: one block is always ready.

EL NIÑO-READY

Ten minutes of fine spray a day stretches a small water source, and month-long crops can be scaled down quickly if water runs short.

SUPPORT AVAILABLE

A rain pipe costs little. Drip and sprinklers: TGMIP, 80–100%. Hybrid vegetables: MIDH, 40%.

The rain pipe: rain on demand



The rain pipe at work: a flat perforated pipe along the beds sprays fine drops over the greens.



Spray drifting over the beds.

WHY THE RAIN PIPE SUITS LEAFY GREENS

1. **Rain-like drops.** Fine spray (thumparlu) keeps tender leaves upright and free of mud splash.
2. **Ten minutes a day.** Short, daily watering keeps shallow roots moist without waterlogging.
3. **Low pressure.** Works at 1–2 kg/cm², best near 1.5; one pipe wets a strip 5–6 m wide.
4. **Less water.** Saves 40–60% of water compared with flooding, by research estimates.
5. **Cheap and simple.** A flat, laser-holed pipe: lay it along the beds, connect, open the valve.

Economics: a small farm that pays daily

1 ACRE 10 GUNTAS · FARMER-REPORTED	
Sales a day	₹1,500–2,000; up to ₹5,000
Sales a month, low prices	₹45,000–50,000
Sales a month, high demand	Up to ₹1,00,000
Fertiliser and sprays	About ₹2,000 a week
Left after inputs, a month	**About ₹37,000–92,000**

Inputs taken as about ₹8,000 a month. Labour for picking and bundling not costed.

SCIENTIFIC NOTE

Leafy vegetables are shallow-rooted and grow fast, so they need light, frequent watering rather than heavy floods.

Staggered sowing turns one short crop into a steady daily supply that matches the market.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Rain pipe and staggered sowing of leafy greens	Cash every day from 1¼ acres	Rain pipe, seed, inputs of ₹2,000 a week	₹45,000–1 lakh sales a month (farmer-reported)	Small farms near a daily market

Plan for: hand weeding, daily picking and bundling, price swings, and keeping the pipe holes clear.



K-028 HORTICULTURE · HIGH-DENSITY ORCHARD

More Trees, Earlier Mangoes

A high-density mango orchard, kept small by pruning, bears years sooner than the old way.

GANDEED MOHAN · Mirjapur, Kosgi mandal, Narayanpet

750 trees On 2.5 acres · about 300 an acre	**15 × 8 ft** Row to row × plant to plant
₹1.5 lakh To establish · farmer-reported	**3 years** To first crop (5 conventional)

A conventional mango orchard is planted wide, about 25 feet each way, and the farmer waits five years for the first real crop.

Gandeed Mohan of Mirjapur planted his 2.5 acres the high-density way: 15 feet between rows and 8 feet between plants, 750 trees on drip. His first crop came in the third year: 90 boxes of 20 kg, with a net income of ₹75,000.

The trees are kept small by pruning every year. The same drip water serves far more trees, the fruit is large and of export quality, and in the summer winds fewer mangoes fall: at most about 10%, he says.

He applies farmyard manure enriched with Trichoderma and Pseudomonas to keep the roots healthy.

CONVENTIONAL VS HIGH DENSITY, PER ACRE

	CONVENTIONAL	HIGH DENSITY
Spacing	25 × 25 ft	**15 ft rows × 8 ft plants**
Trees an acre	About 70	**About 300 (750 on 2.5 acres)**
First crop	About 5 years	**3 years**
Yield an acre	Base	**2–3 times more**
Fruit drop in winds	High	**10% at most**
Water	Wide basins, more water	**Drip: same water, ~3× the trees**
Main work	Little pruning	**Pruning every year**

Comparison as reported by the farmer; tree numbers worked out from the spacing.

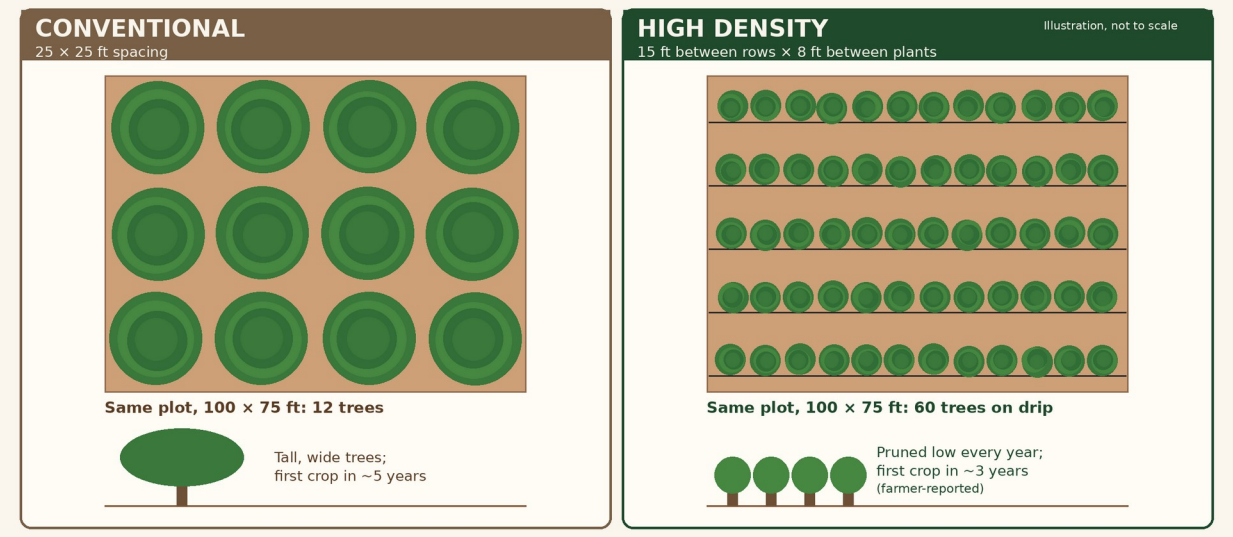
EL NIÑO-READY

Drip puts water only at the root zone, and small, pruned trees need less of it. Close rows also break hot summer winds.

SUPPORT AVAILABLE

MIDH high-density planting with drip: 40%, up to ₹60,000 a hectare over 3 years (60:20:20). Drip: TGMIP, 80–100%.

Same land, four times the trees





Compact, pruned high-density rows.

PRUNING: THE KEY TO HIGH DENSITY

1. Prune every year, soon after harvest.
2. Cut back the shoot tips that fruited.
3. Remove crowded, crossing and inward branches.
4. Keep the centre open to light and air.
5. Keep trees short enough to spray and pick from the ground.

Economics: planting cost and first crop

ESTABLISHMENT, 2.5 ACRES · FARMER-REPORTED	
Grafts	₹100 each
Drip	After subsidy
Pits, manure, labour	Included
Total, 2.5 acres	**₹1,50,000**
Per acre	About ₹60,000
First crop, year 3	90 boxes of 20 kg
Net income from it	**₹75,000**

90 boxes of 20 kg = 1.8 tonnes. Variety: Benishan (Banganapalli). The first crop's net income already equals half the planting cost.

SCIENTIFIC NOTE

ICAR-CISH reports 14–15 t a hectare from fertigated high-density mango, against 7–8 t conventionally, with fruit drop as low as 4%.

Trials on Alphonso found closer spacing raised yield without reducing fruit size.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
High-density mango, pruned yearly, on drip	More trees, earlier fruit, less drop	₹1.5 lakh for 2.5 acres	Year 3: 1.8 t, ₹75,000 net	Farmers ready to prune every year

Plan for: yearly pruning skill and labour, higher planting cost, assured drip water, and closer watch on hoppers and fruit fly.



K-029 AGRI-ENTREPRENEURSHIP · FARMER PRODUCER ORGANISATION

Stronger Together

A licensed business owned by 1,074 small farmers.

1,074	12	₹30 lakh	₹1 crore
Farmer members	Villages covered	Capital: NABARD + farmers	Groundnut seed to farmers

A small farmer selling alone has little say over the price of seed, fertiliser or his harvest. In 2023, farmers around Bhanginapally in Kosgi mandal joined hands to change that.

Their Bhanginapally Farmer Producer Company Ltd now has 1,074 members in 12 villages, led by chairman Nandigama Venkat Reddy, with the Centre for Sustainable Agriculture.

With seed, fertiliser, pesticide and marketing licences, it sells inputs and buys members' paddy, redgram and jowar. Through the oilseeds mission (NMEO-OS) it delivered groundnut seed worth about ₹1 crore, and it is preparing to open a Custom Hiring Centre.

WHAT THE FPO DOES

Inputs
Licensed sales of seed, fertiliser and pesticides to members.

Procurement
Buys paddy, redgram and jowar from members.

Schemes
Groundnut seed worth ₹1 crore under NMEO-OS.

Next: CHC
A Custom Hiring Centre to rent farm machinery to members.

CAPITAL ₹15 lakh NABARD grant + ₹15 lakh farmers' share = ₹30 lakh

EL NIÑO-READY
Timely seed, inputs and shared machinery help members sow fast when the rains come late.

SUPPORT AVAILABLE
FPO scheme: up to ₹18 lakh over 3 years; ₹2,000 equity grant a member. CHC: SMAM, 40% of cost.



Chairman and directors of Bhusampatti FPO at the Rythu Vedika, Dorepally, Maddur mandal.

K-030 AGRI-ENTREPRENEURSHIP · FARMER PRODUCER ORGANISATION

Selling Together, Buying Together

Over a thousand small farmers of Maddur mandal, organised as one.

1,022	2022	Paddy	CHC
Farmer members	Year established	Procured from members	Planned with government

Dorepally, in Maddur mandal, is a village of hard-working small paddy farmers. In 2022 they took a step that changed how they farm: they came together and formed their own company.

The Bhusampatti Farmer Producer Organisation has since grown to 1,022 members, who now buy inputs and sell their harvest together.

The FPO procures members' paddy and sells fertiliser at the village, so farmers save trips to town and buy and sell in bulk.

Its next step: working with the government to set up a Custom Hiring Centre, so members can rent machinery instead of waiting for it.

WHAT THE FPO DOES

Procurement
Buys paddy from members at the village.

Fertiliser
Sells fertiliser to members, close to their fields.

Bargaining power
1,022 members buy and sell as one.

Next: CHC
A Custom Hiring Centre, set up with government support.

THE MESSAGE ***Small farmers, organised, get the scale of a big one.***

EL NIÑO-READY
Timely seed, inputs and shared machinery help members sow fast when the rains come late.

SUPPORT AVAILABLE
FPO scheme: up to ₹18 lakh over 3 years; ₹2,000 equity grant a member. CHC: SMAM, 40% of cost.



K-031 CROP DIVERSIFICATION · OILSEEDS

One Acre's Water, Three Acres of Crop

Castor in place of paddy: less water, less labour, a ready market.

PATEL MOHAN REDDY · Lingalched, Kothapally mandal, Narayanpet

1 : 3 Paddy water for 1 acre grows 3 of castor	**7–8 qtl** Yield an acre · farmer-reported
₹7,500 Price a quintal	**1 bag** 20:20:0:13, the only fertiliser

The water that floods one acre of paddy, says Patel Mohan Reddy of Lingalched, is enough for three acres of castor. So he grows castor, the hybrid NBCH-66.

There is no puddling or transplanting, so labour and costs fall.

He applies just one bag of 20:20:0:13 an acre and harvests 7–8 quintals, which sell at about ₹7,500 a quintal. The crop takes about four months and costs him ₹12,000 an acre.

> *"With less water we can manage the crop. Less labour is needed, upkeep is easy and there is no marketing problem. In El Niño conditions like these, we must shift to crops that use less water.* — **PATEL MOHAN REDDY**

Economics: one acre of castor

ONE ACRE · FARMER-REPORTED	
Yield	7–8 quintals
Price	₹7,500 a quintal
Gross income	**₹52,500–60,000**
Cost of cultivation	₹12,000
Net income	**₹40,500–48,000**
Crop duration	About 4 months

Net = gross − cost of ₹12,000 an acre (calculated). All figures farmer-reported.

CROP PROTECTION

Semilooper (20–25 days): he sprays chlorpyriphos. Spray only when 4–5 larvae a plant appear; spare natural parasites.

Gray mold: ICAR-IIOR recommends propiconazole 1 ml a litre, two sprays when rain falls at spike stage. Remove and destroy infected spikes.

EL NIÑO-READY

Deep-rooted castor tolerates long dry spells. Shifting paddy land to castor lets the same water cover three times the area.

SUPPORT AVAILABLE

Castor is covered under the National Mission on Edible Oils – Oilseeds (NMEO-OS).

Best suited to: red soils and rainfed or limited-water land. **Plan for:** gray mold in wet spells, semilooper, several pickings.

IN THEIR OWN WORDS

What the Farmers Say

Opinions recorded during field visits, as given in the stories.

> *With less water we can manage the crop. Less labour is needed, upkeep is easy and there is no marketing problem. In El Niño conditions like these, we must shift to crops that use less water.*

PATEL MOHAN REDDY
Castor, K-031

> *If we care for the plant for four years, it will care for us, giving income every month for 30 years, like a government job.*

VENKATAYYA
Oil palm, K-013

> *Farmers have to go for intercropping. If we lose one crop, we get income from the other, and fertiliser and pesticide costs are also less.*

RACHURI VINOD KUMAR
Cotton + redgram, K-016

> *The water for one acre of paddy can grow five acres of watermelon, and kharif fruit brings high returns.*

CHEEKATI KRISHNA
Watermelon, K-009

> *Farmers are adopting new technology because of the labour shortage. I have used that to create my own employment.*

RAJU
Spray drone, K-010

> *With patience, a small piece of land and ten minutes of watering with the rain pipe give ₹50,000 to ₹1 lakh a month.*

AVUTI MANIKYAPPA
Leafy vegetables, K-027



K-032 INTERCROPPING · RAISED BEDS AND MULCH

Two Crops From One Bed

Onion in the mulch holes, watermelon in the centre: one drip line feeds both.

GOLLA NARESH · Bhuneed, Kothapally mandal, Narayanpet

½ acre Two crops, same water	**₹55,000** Cost of cultivation
70 days Watermelon to harvest	**₹1.5 lakh** Profit · farmer-reported

Golla Naresh of Bhuneed (K-002) grows watermelon on raised beds covered with mulch sheet, watered and fed through drip. But a watermelon plant uses only a small part of each bed.

So he punches holes in the mulch and sows onion in them, 4–5 inches apart, around the watermelon.

Both crops share the same bed, drip water and fertiliser. The watermelon is harvested in about 70 days; the onion bulbs then grow on to a bigger size.

> *"Space is used well. On raised beds the onion grows tall and forms a good-sized bulb. Watermelon is a creeper, so it does not affect the onion. After the watermelon is harvested at 70 days, the nutrients go to the onion bulbs and they grow bigger. We get two incomes at a time: about ₹1.5 lakh profit from half an acre.* — **GOLLA NARESH**

HOW HE SETS UP THE BED

1. Raise beds and lay the drip line.
2. Cover with mulch film; punch holes in rows.
3. Plant watermelon in the centre, onion along the edges.
4. Harvest both crops from the same bed.

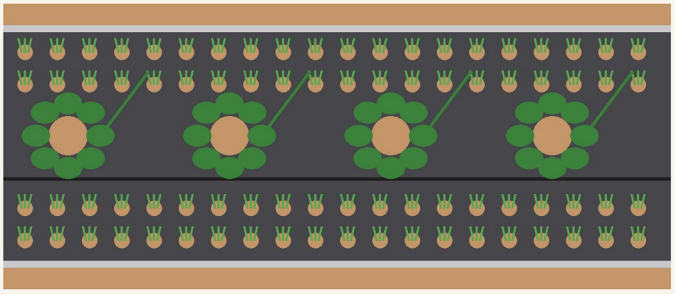
SCIENTIFIC NOTE
Mulch keeps soil moist, warms it and smothers weeds; drip under mulch puts water and fertiliser right at the roots.

EL NIÑO-READY
One drip line and one mulch sheet give two crops: more produce from every litre in a dry year.

SUPPORT AVAILABLE
Mulch: MIDH, 50%. Hybrid vegetables: MIDH, 40%. Drip: TGMIP, 80–100%.

Same water, same fertiliser, two harvests

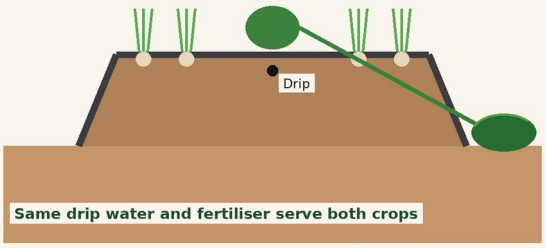
TOP VIEW OF ONE BED



Onion rows in punched holes along the edges
Watermelon in the centre row; drip under the mulch
Vines spread into the furrow between beds

CROSS-SECTION

Raised bed covered with mulch film
Onion · watermelon · onion



Illustration, not to scale

01 Raised beds
Good drainage keeps roots healthy and fruit off wet soil.

02 Mulch film
Saves water, controls weeds, keeps fruit clean.

03 Drip + fertigation
Water and nutrients reach both crops through one line.

04 Onion in the holes
Sown 4–5 in apart; bulbs grow bigger after the melon harvest.

05 Watermelon, 70 days
A creeper: its vines spread without shading the onion.

06 Shared costs
Beds, mulch and drip are paid for once and used twice.

Economics: half an acre, two crops

FARMER-REPORTED · PENDING VERIFICATION	
Area	½ acre
Onion seed	500 g an acre
Watermelon seed	800 g an acre
Onion spacing	4–5 in, in mulch holes
Watermelon harvest	About 70 days
Cost of cultivation	₹55,000
Gross income (calculated)	About ₹2,05,000
Net profit	**About ₹1,50,000**

Gross = net + cost. Two incomes from one set of beds, mulch, drip and water.

SCIENTIFIC NOTE

Onion's shallow roots and watermelon's spreading vines use different space, so the two crops compete little.

Keep onion holes at least a hand-span from watermelon plants so neither shades the other early on.

IN BRIEF

Innovation	Main benefit	Investment	Result	Best suited to
Onion intercropped in watermelon on mulched beds	Two crops for one set of costs	Beds, mulch, drip, seed	₹1.5 lakh profit from ½ acre	Farmers already using mulch and drip

Best suited to: farmers already growing on mulch and drip. **Plan for:** careful hole layout, two harvest schedules, and thrips control in onion.



K-033 SOIL HEALTH · GREEN MANURE

A Crop Grown to Feed the Soil

Jeeluga, ploughed back before flowering, adds nitrogen and organic matter for the next crop.

KADAPANI SANGAPPA · Ekkamade, Kothapally mandal, Narayanpet

Jeeluga Dhaincha (Sesbania)	**15 kg** Seed an acre · then ploughed in at 35–45 days
₹5,500 Fertiliser saved an acre · farmer-reported	**50%** Seed subsidy in Telangana

Year after year of fertiliser bags leaves soil hard and poor in organic matter. Kadapani Sangappa of Ekkamade (see also K-020) rebuilds his soil the traditional way: with green manure.

Before the main season he sows jeeluga, a fast-growing legume, at 15 kg of seed an acre, and lets it grow for five to six weeks.

Just before it flowers, he ploughs the green crop back into the soil. As it rots it releases nitrogen and organic matter, so the soil holds water better and his next crop needs less fertiliser: he reports a saving of about ₹5,500 an acre.

THE RULE

Plough it in before flowering, while the stems are still soft. Woody stems rot slowly.

GREEN MANURING IN FOUR STEPS

1 Sow jeeluga seed with the first rains or one irrigation.

2 Let it grow 35–45 days.

3 Plough it in before flowering.

4 Plant the main crop after 1–2 weeks.

SCIENTIFIC NOTE

Jeeluga's root nodules fix nitrogen from the air; ploughed in, the crop adds about 60–80 kg N and tonnes of organic matter a hectare.

EL NIÑO-READY

Soil rich in organic matter soaks up rain and holds moisture longer through dry spells.

SUPPORT AVAILABLE

Green manure seed (jeeluga, janumu, pillipesara) at 50% subsidy through PACS and Rythu Vedikas.

Best suited to: any field before paddy or other kharif crops. **Plan for:** one irrigation if rains are late, and timely ploughing.

Data: farmer-reported, pending verification.



K-034 WATER MANAGEMENT · FARM POND

A Pond That Saves the Orchard

Stored water carries ten acres of fruit trees through summer and dry spells.

GANDEED MOHAN · Mirjapur, Kosgi mandal, Narayanpet

80 × 80 × 10 ft Farm pond	**~18 lakh L** Water stored when full
₹4.5 lakh Construction cost · farmer-reported	**10 acres** Mango and sweet orange

Two borewells water Gandeed Mohan's ten acres of mango and sweet orange. But in summer, borewell yields fall and power is uncertain, just when the trees need water most.

So he built a farm pond, 80 feet square and 10 feet deep, for about ₹4.5 lakh.

When water and power are available, the borewells fill the pond. In summer or a long dry spell, he draws on it to give **life-saving irrigation** through drip, so the trees keep their fruit.

WHY IT MATTERS

An orchard is ten years of work. One summer without water can undo it; the pond is the farm's insurance.

HIS FARM POND · CEMENT-LINED, BESIDE THE ORCHARD



SCIENTIFIC NOTE

His pond is cement-lined, with steps for access. Lining cuts seepage losses in light red soils; a fence keeps the pond safe.

EL NIÑO-READY

Water stored in good months is released drop by drop in the dry months, so fruit trees survive an El Niño summer.

SUPPORT AVAILABLE

Farm ponds are a permitted work under VB-G RAM G (formerly MGNREGA). Drip and sprinklers: TGMIP, 80–100%.

Best suited to: orchards on borewell water. **Plan for:** digging cost, lining, safety fencing, silt cleaning.

Data: farmer-reported. The pond is filled from his borewells.



K-035 HORTICULTURE · DRIP AND MULCH

Green Chilli on Mulch and Drip

Two acres of chilli on covered beds earned ₹2.2 lakh, with less water and fewer weeds.

BANTARAM RAJENDRABABU · Amlikunta, Gundumal mandal, Narayanpet

2 acres Green chilli · farmer-reported	**₹50,000** Drip and mulch set-up
₹2.2 lakh Gross from 2 acres · farmer-reported	**No sprays** Chemical-free care

Chilli grown in open furrows loses water, fights weeds all season and rots where wet soil touches the fruit. Bantaram Rajendrababu of Amlikunta grows his 2 acres of green chilli on raised beds under plastic mulch, with drip lines beneath the sheet.

The drip and mulch cost about ₹50,000; the crop brought a gross income of ₹2.2 lakh.

Mulch keeps the soil moist and cool, smothers weeds and keeps fruit clean. Drip waters and feeds each plant at the root. He also uses jeeluga green manure in his paddy.

> *"I grow green chilli, cabbage and capsicum without spraying chemicals, and jeeluga as green manure in my paddy fields. This reduces my spending on fertilisers and chemicals.* — **BANTARAM RAJENDRABABU**

FIELD VISIT · CHILLI AND VEGETABLES ON MULCHED BEDS



SCIENTIFIC NOTE
Drip saves 50–60% of water over surface irrigation (ICAR-IIWM); mulch cuts evaporation and weeds.

EL NIÑO-READY
The same borewell irrigates more land, and chilli is protected at flowering.

SUPPORT AVAILABLE
Drip: TGMIP, 80–100%. Plastic mulch: MIDH, 50%.

Best suited to: vegetable growers with a borewell and a nearby market. **Plan for:** mulch laying, drip maintenance, and watching for thrips and mites.



K-036 LIVESTOCK · DAIRY

Milk Money Every Day

A dairy unit that turns fodder and care into a steady daily income.

GALLA YELLAPPA · Kosgi, Kosgi mandal, Narayanpet

10 cows Jersey · milch animals	**80 litres** Milk a day · farmer-reported
₹40 Price a litre	**₹66,000** Net a month · farmer-reported

Crops pay once a season; milk pays every day. Galla Yellappa of Kosgi keeps a dairy alongside his fields, giving the family a regular income that does not wait for harvest.

His ten Jersey cows give about 80 litres a day, sold at ₹40 a litre: about ₹96,000 a month. After ₹30,000 for feed and care, he keeps about ₹66,000.

Good dairy needs **green fodder**, **clean water and shade**, and **timely vaccination**. He grows fodder on 2 acres and sells milk to a buyer in Kosgi; dung sales pay the small running costs.

> *"Dairy is a good daily source of income. We need to keep the dairy farm and the animals very clean and feed them properly.* — GALLA YELLAPPA

Economics: the dairy unit

FARMER-REPORTED · PENDING VERIFICATION	
Animals	10 Jersey cows
Fodder area	2 acres
Milk a day	80 litres (about 8 a cow)
Price a litre	₹40
Milk income a month	₹96,000
Feed and care a month	₹30,000
Net a month	**₹66,000**

Net = milk income − feed and care. Dung sales not counted. Farmer-reported.



His dairy shed: shade nets, fans and a long feed trough.

GOOD PRACTICE
Napier fodder on a small plot; mineral mixture and clean water; vaccinate against foot-and-mouth disease.

EL NIÑO-READY
Silage and stored dry fodder keep milk flowing through a failed monsoon (see K-044).

SUPPORT AVAILABLE
Animal Husbandry Department schemes and dairy loans.

Best suited to: families with labour at home and a milk buyer nearby. **Plan for:** daily care, fodder in summer, vaccination and breeding.



K-037 HORTICULTURE · VEGETABLES

Cluster Beans, Ten Guntas at a Time

Staggered sowing keeps goru chikkudu coming to market all year.

MAHIPAL · Mungimalla, Kosgi mandal, Narayanpet

10 guntas A block at a time	**30 days** Sowing to first picking
30–50 kg Picked a day · farmer-reported	**₹30–35K** A month · farmer-reported

Mahipal of Mungimalla grows goru chikkudu, cluster bean, in blocks of 10 guntas. When one block is half grown he sows the next, so there are always pods to pick.

He sows rows 2 feet apart, with plants half a foot apart. Picking starts about 30 days after sowing and goes on for about 30 days, giving 30–50 kg a day at ₹40 a kilo.

The crop needs little water and few inputs, and the market wants it in every season. As a legume, its roots fix nitrogen, so the next crop on that block needs less fertiliser.

> *"Goru chikkudu grows on any type of land. With less water we get income every day. On a small piece of land, with little water, we can earn ₹30,000–35,000 a month.* — **MAHIPAL**

Economics: one 10-gunta block

FARMER-REPORTED · PENDING VERIFICATION	
Spacing	2 ft × ½ ft
Picking	30–50 kg a day for ~30 days
Price	₹40 a kg
Gross (calculated)	₹36,000–60,000
Cost of cultivation	₹15,000
Net (calculated)	**₹21,000–45,000**

Gross = daily picking × ₹40 × 30 days. The farmer reports ₹30,000–35,000 a month, within this range.

SCIENTIFIC NOTE

Cluster bean tolerates heat and dry spells better than most vegetables.

Pick tender pods every few days; older pods turn fibrous and fetch less.

GOOD PRACTICE

Treat seed with Rhizobium; watch for powdery mildew and aphids.

EL NIÑO-READY

A drought-hardy legume that keeps earning when water is short.

SUPPORT AVAILABLE

Hybrid vegetable seed: MIDH, 40%. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: small farms near a daily vegetable market. **Plan for:** regular picking, staggered sowing, and price swings.

Data: farmer-reported, pending verification.



K-038 HORTICULTURE · VEGETABLES

Bhendi Timed for the Best Price

Okra timed for November–January earned ₹1 lakh net from one acre in three months.

MADUGU VENKATAPPA · Mungimalla, Kosgi mandal, Narayanpet

4–5 bags 20 kg each, picked daily	**₹1,000** A bag · farmer-reported
₹1 lakh Net from 1 acre in 3 months	**Nov–Jan** Harvest window he targets

For Madugu Venkatappa, the sowing date is the secret. Bhendi floods the market in some months and is scarce in others. He sows so that his one acre is picking from November to January, when prices are good.

He weeds with a low-cost wheel-hoe weeder: easy to handle, and it cuts the cost of weeding labour.

At peak he picks 4–5 bags of 20 kg a day and sells each for about ₹1,000. The three-month crop brought ₹1,80,000 against ₹80,000 of costs.

> *"For bhendi, the season of cultivation is most important. If we get the yield in the winter season, we get the best prices and good profits.* — **MADUGU VENKATAPPA**

Economics: one acre, one crop

ONE ACRE, ABOUT 3 MONTHS · FARMER-REPORTED	
Daily picking	4–5 bags of 20 kg
Price	About ₹1,000 a bag
Gross income	₹1,80,000
Cost of cultivation	₹80,000
Net income	**₹1,00,000**
Benefit–cost ratio	2.25

Benefit–cost ratio = gross ÷ cost. Figures farmer-reported, pending verification.



Low-cost wheel-hoe weeder: easy to push between rows, less labour.

SCIENTIFIC NOTE

Pick every 2–3 days. Main risk: yellow vein mosaic, spread by whitefly; use tolerant hybrids and sticky traps.

EL NIÑO-READY

A short crop on drip uses little water and can be timed around the rains.

SUPPORT AVAILABLE

Hybrid vegetables: MIDH, 40%. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: farmers who can plan sowing to the market. **Plan for:** daily picking labour, whitefly control, and price swings.



K-039 HORTICULTURE · CREEPER VEGETABLES

Bitter Gourd on Temporary Pandals

A low-cost pandal of iron rods and J-wire carries two or three crops of kakara a year.

KANCHIMPALLY KRISHNAIAH · Malreddypally, Kosgi mandal, Narayanpet

₹30,000 Pandal cost an acre · farmer-reported	**2–3 crops** A year on one frame
₹3 lakh Gross from 1 acre in 3 months	**₹1.5 lakh** Net after ₹1.5 lakh of costs

Bitter gourd grown on the ground rots where it touches wet soil and is hard to pick. Kanchimpally Krishnaiah lifts it up on a temporary pandal of iron rods and J-wire, over beds covered with plastic mulch.

The frame costs about ₹30,000 an acre and serves two or three crops a year. From one acre the crop earned about ₹3 lakh in three months; after ₹1.5 lakh of costs he kept ₹1.5 lakh.

Hanging fruit stays clean, straight and easy to pick, and fetches a better price.

> *"For bitter gourd, if we grow it on pandals we get a high yield and a quality product, and picking is also easy. Farmers who cannot afford permanent pandals can grow it on temporary pandals at a cost of ₹30,000 an acre and get two or three crops a year.* — KANCHIMPALLY KRISHNAIAH

HIS TEMPORARY PANDAL · J-WIRE OVER MULCHED BEDS



SCIENTIFIC NOTE
Trailed vines get more light and air, so leaves stay healthier and fruit is longer and greener.

EL NIÑO-READY
Drip under the pandal waters only the root zone, saving water in a dry season.

SUPPORT AVAILABLE
Pandals and trellis: MIDH support. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: farmers growing gourds near a town market. **Plan for:** frame cost, fruit fly traps, and regular picking.

Data: farmer-reported, pending verification. Gross = net + costs (calculated).



K-040 HORTICULTURE · VEGETABLES

₹1,500 a Day, Every Day

A mix of vegetables, planned so something is always ready to sell.

KUMMARI BALAKISTAIAH · Mungimalla, Kosgi mandal, Narayanpet

₹1,500+ Net a day, after costs · farmer-reported	**Year-round** Vegetables in rotation
Many crops Brinjal, chilli, creepers	**2 acres** Family labour only

Kummari Balakistaiah never grows just one vegetable. Brinjal, green chilli, gourds and other creepers share his land, sown at different times through the year.

Something is always ready to pick, so he sells at the market every day. After all expenses, he says, he keeps at least ₹1,500 a day. If one crop's price falls, the others carry him.

> *"I grow vegetables round the year and plan it that way, with brinjal, chilli, creepers and more, so I get a net income of at least ₹1,500 every day. I don't need to go for wage work; only my family and I work on the farm, and we earn every day. —*
> **KUMMARI BALAKISTAIAH**

Economics: his daily vegetable farm

FARMER-REPORTED	
Area	2 acres
Labour	Family only
Net a day	₹1,500 minimum
Net a month (30 days)	**About ₹45,000**

Monthly figure is ₹1,500 × 30 days. Farmer-reported.



Field visit in his chilli: the family picks and sells every day.

SCIENTIFIC NOTE
Mixing crop families (brinjal, chilli, gourds) breaks pest cycles; staggered sowing gives a steady daily supply.

EL NIÑO-READY
Many short crops spread risk: a dry spell rarely hits them all at once.

SUPPORT AVAILABLE
Hybrid vegetables: MIDH, 40%. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: hard-working families near a daily market. **Plan for:** daily labour, planning, and pest watch across many crops.



K-041 LIVESTOCK · BACKYARD POULTRY

Desi Hens, Steady Income

Native chickens that forage on the farm and fetch a premium price.

C. ABDUL LATEEF · Nagasanpalli, Kosgi mandal, Narayanpet

200–300 Birds in the flock	**8–10 birds** Sold every week
₹10,000 A week · farmer-reported	**Nil** Bought feed: birds forage

Natu kollu, country chickens, are in demand: buyers pay more for their meat and eggs than for broilers. C. Abdul Lateef of Nagasanpalli keeps a flock alongside his crops and orchard.

The birds forage on insects, weeds and fallen grain in his natural farm, so he buys no feed, and their droppings enrich the soil. Each week he sells 8–10 birds for about ₹10,000.

> *"Farmers should not depend on a single income. On the farm we have to create other sources of income, like natu kolla pempakam and dairy. I wish to grow the flock up to 2,000 birds.* — **C. ABDUL LATEEF**

Economics: the flock

FARMER-REPORTED · PENDING VERIFICATION	
Birds	200–300
Sales a week	8–10 birds
Income a week	About ₹10,000
Price a bird (calculated)	₹1,000–1,250
Bought feed and care	Nil, free-range
Income a month (calculated)	**About ₹40,000**

Monthly figure is ₹10,000 × 4 weeks. Farmer-reported.

SCIENTIFIC NOTE

Vaccinate against Ranikhet disease (Newcastle disease), the main killer of village poultry.

Improved dual-purpose breeds grow faster while foraging like desi birds.

GOOD PRACTICE

Give a predator-proof night shelter and clean water; deworm regularly.

EL NIÑO-READY

Foraging birds need little bought feed, so a failed season hurts them less.

SUPPORT AVAILABLE

Rural poultry under the National Livestock Mission.

Best suited to: any farm family with a backyard and some space. **Plan for:** predators, vaccination, and disease watch.

Data: farmer-reported, pending verification.



K-042 NUTRITION GARDEN · FRUITS

Thirty Fruits on Ten Guntas

A family fruit garden that gives something to eat in every season.

C. ABDUL LATEEF · Kosgi, Kosgi mandal, Narayanpet

30 kinds Fruit trees	**10 guntas** Of land
₹50,000 Saved on fruit a year · farmer-reported	**All year** Seasonal fruit for the family

On just 10 guntas, C. Abdul Lateef grows about 30 kinds of fruit plants. The major ones are sapota, seethaphal (custard apple), mango, allaneredu (jamun), ramphal, apple, lemon, sweet orange, banana and dragon fruit.

Because each fruits in a different season, his family has fresh fruit nearly all year, grown without chemicals and without depending on the market. He estimates the garden saves about ₹50,000 a year, besides the health benefits.

BALANCED NUTRITION AT HOME

Different fruits bring different vitamins and minerals: amla for vitamin C, guava and papaya for fibre, sapota and banana for energy.

The garden at a glance

FARMER-REPORTED	
Area	10 guntas
Kinds of fruit	About 30
Chemicals	None
Saving on fruit a year	**About ₹50,000**

Saving as estimated by the farmer.



Sapota bearing in his nutrition garden.

SCIENTIFIC NOTE

Tall and short trees together use light at several levels; trees fruiting in different seasons spread the harvest.

EL NIÑO-READY

Established fruit trees root deep and ride out dry spells better than seasonal crops.

SUPPORT AVAILABLE

Fruit plants: MIDH area expansion. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: every farm family: start with a few guntas. **Plan for:** years to first fruit, pruning, and spacing the trees well.



K-043 HORTICULTURE · ORCHARD MANAGEMENT

New Life for a 20-Year-Old Mango Orchard

Heading back old trees, row by row, brings fresh shoots and earlier crops.

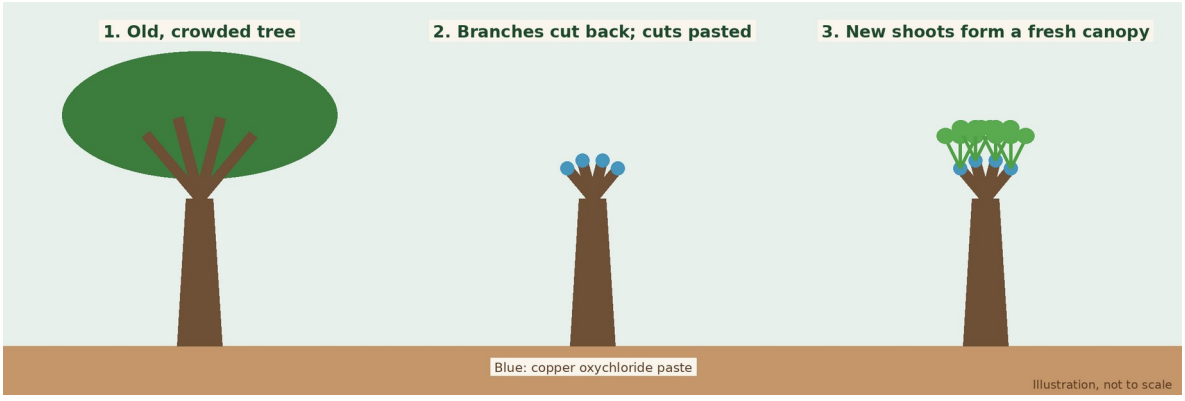
C. ABDUL LATEEF · Kosgi, Kosgi mandal, Narayanpet

20 years Age of the orchard	**25 × 25 ft** Spacing
Alternate rows Cut in alternate years	**COC paste** On every cut

Old mango trees grow tall and crowded. Light no longer reaches inside, and fruit forms only at the top, hard to pick and spray. C. Abdul Lateef revived his 20-year-old orchard instead of uprooting it.

He cuts the main branches back above the trunk and pastes every cut with copper oxychloride (COC). Fresh shoots soon follow. He cuts alternate rows in alternate years, so half the orchard always bears. With roots already established, he says, the new canopy fruits early.

HOW REJUVENATION WORKS



SCIENTIFIC NOTE

ICAR-CISH heads back branches in December, about 3 m from the ground, then keeps 4–6 well-spaced shoots per branch.

EL NIÑO-READY

A smaller canopy needs less water, and established roots draw on deep moisture.

SUPPORT AVAILABLE

Rejuvenation of old orchards is supported under MIDH.

Best suited to: old, crowded orchards with healthy trunks. **Plan for:** a year with less fruit on cut rows, shoot thinning, and borer watch.



K-044 LIVESTOCK · FODDER

Green Fodder for the Dry Months

Silage made in drums keeps cattle fed and milking when grass runs out.

KHAN ASLAM DURRANI · Kosgi, Kosgi mandal, Narayanpet

30 drums Of silage made · airtight	**Jaggery** Added to help fermentation
Summer When it is fed	**More milk** Farmer-reported

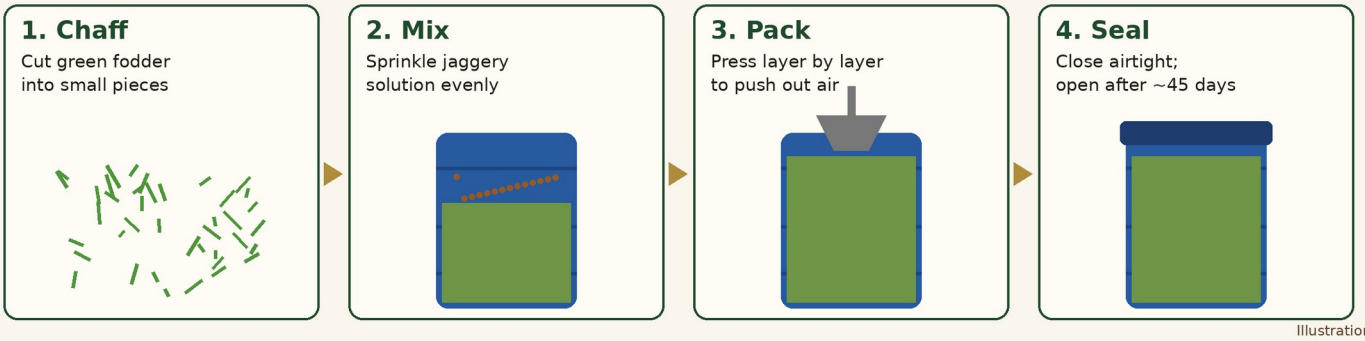
In summer, green grass disappears and milk yields fall. Khan Aslam Durrani stores the season's surplus green fodder as silage, packed in 30 airtight drums.

He chaffs the green grass, mixes in jaggery, presses it down to drive out air, and seals the drum. When grass is scarce, the cattle eat the silage readily, and he finds milk production goes up.

EL NIÑO INSURANCE

Fodder made in the good months feeds the herd in a failed one.

SILAGE IN FOUR STEPS



Illustration

SCIENTIFIC NOTE

Without air, sugars ferment to lactic acid, which preserves the fodder; jaggery feeds that fermentation.

EL NIÑO-READY

Silage stored before summer keeps animals fed through drought.

SUPPORT AVAILABLE

Silage units: National Livestock Mission feed and fodder support.

Best suited to: any dairy farmer with green fodder in season. **Plan for:** airtight sealing; spoiled, mouldy silage must be thrown away.



K-045 VALUE ADDITION · AGRI-ENTERPRISE

The Ganuga Maker

Building bullock-driven stone oil presses for farmers who want pure, cold-pressed oil.

V. RAMA KRISHNA · Peddapur, Kothapally mandal, Narayanpet

20 kg Seed per shift	**8 kg** Oil from it · farmer-reported
₹1.8 lakh A ganuga, installed	**Stone** From Allagadda

Before mills, oil came from the ganuga: a stone mortar turned by bullocks. V. Rama Krishna of Peddapur now builds them for farmers who want to press their own oil.

He brings the stone from Allagadda and shapes each ganuga with great accuracy. One takes 20 kg of seed a shift and gives about 8 kg of oil. A ganuga costs about ₹1.8 lakh, installed.

Farmers who want a ganuga can contact him through the Agriculture Department, Kosgi Division.

The ganuga at a glance

FARMER-REPORTED	
Seed per shift	20 kg
Oil per shift	About 8 kg (about 40%)
Power	Bullocks
Cost, installed	**About ₹1,80,000**

Oil recovery depends on the seed and its moisture.



A ganuga he built: granite mortar and wooden pestle, ready for bullocks.

SCIENTIFIC NOTE

A slow, unheated press keeps the oil's natural flavour (cold-pressed). The leftover cake is good cattle feed or manure.

EL NIÑO-READY

Pressing home-grown groundnut or sesame adds income without more water.

SUPPORT AVAILABLE

Food processing: PMFME scheme for micro units.

Best suited to: oilseed growers and FPOs wanting their own brand. **Plan for:** bullock care, seed quality, and building a market for the oil.

Data: farmer-reported, pending verification.



K-046 NATURAL FARMING · PADDY

Paddy Without Bought Inputs

Natural farming with home-made jeevamrutham and kashayalu: ₹72,500 net from one acre.

MADHAVULU · Mushrifa, Kosgi mandal, Narayanpet

25 qtl/acre Paddy yield · farmer-reported	**₹3,500** A quintal
₹15,000 Cost of cultivation	**₹72,500** Net an acre (calculated)

Fertiliser and pesticide bills eat into most paddy farmers' profits. Madhavulu of Mushrifa grows his paddy the natural-farming way, following Subhash Palekar's methods, and buys almost nothing.

He feeds the soil with jeevamrutham, a ferment of cow dung, urine, jaggery and pulse flour, and keeps pests down with herbal kashayalu. His crop gave 25 quintals, sold at ₹3,500 a quintal, against a cost of only ₹15,000.

> *"In the present situation we have to take care of our health. Many diseases like cancer are coming from chemical food; to prevent that we need chemical-free farming. Subhash Palekar's methods are good.* — MADHAVULU

Economics: natural-farming paddy, 1 acre

FARMER-REPORTED · PENDING VERIFICATION

Yield	25 quintals
Price	₹3,500 a quintal
Gross income	₹87,500
Cost of cultivation	₹15,000
Net income	**₹72,500**

Gross = 25 × ₹3,500; net = gross − cost. B:C ratio 5.8. Farmer-reported.

SCIENTIFIC NOTE

Jeevamrutham adds microbes that help release nutrients already in the soil.

GOOD PRACTICE

Keep desi cows for dung and urine; mulch with crop residue instead of burning it.

EL NIÑO-READY

Soil rich in organic matter holds more moisture through dry spells.

SUPPORT AVAILABLE

National Mission on Natural Farming: training and support where it operates.

Best suited to: farmers with a desi cow and time to make inputs. **Plan for:** a conversion period and labour for making inputs.



K-047 INTERCROPPING · OIL PALM

Earning While the Oil Palm Grows

Cotton and redgram between young palms bring income in the four waiting years.

AUTI MALLESH · Mungimalla, Kosgi mandal, Narayanpet

4 qtl Cotton an acre · farmer-reported	**6 qtl** Redgram an acre · farmer-reported
~4 years Oil palm to first harvest	**Two incomes** From the same land

Oil palm takes about four years to give its first bunches. Auti Mallesh of Mungimalla has 4 acres of young oil palm and does not let the space between the palms lie idle.

He grows cotton and redgram as intercrops between the palm rows. Each acre gives about 4 quintals of cotton or 6 quintals of redgram, so the land earns while the palms grow. Once the palm canopy closes, the intercrops make way.

> *"While the oil palm is in its early years, we can grow intercrops and get an income.* — **AUTI MALLESH**

Economics: the intercrops

FARMER-REPORTED · PENDING VERIFICATION	
Cotton yield	4 quintals an acre
Redgram yield	6 quintals an acre
Oil palm area	**4 acres**

Intercrop yields are farmer-reported, pending verification.

SCIENTIFIC NOTE

Keep intercrops a safe distance from the palm basins so they do not compete for water and nutrients.

Redgram, a legume, also adds nitrogen to the soil.

GOOD PRACTICE

Intercrop only in the first 3–4 years, before the palm canopy closes (see K-013).

EL NIÑO-READY

Two crops on one field spread the risk of a bad season.

SUPPORT AVAILABLE

NMEO-OP: planting material and maintenance support, including intercropping in the gestation years.

Best suited to: new oil palm growers with assured water. **Plan for:** keeping intercrops clear of the palm basins.



Members and directors of the SNTC Milk Producers MACS (FPO) at the society office, Sarjakhanpet.

K-048 AGRI-ENTREPRENEURSHIP · DAIRY FPO

A Dairy FPO for Four Villages

269 dairy farmers of four villages pool their milk and plan a dairy of their own.

SNTC MILK PRODUCERS MACS (FPO) · 4 villages, Kosgi mandal

2025	269	4 villages	1,000+
Formed	Farmer members	Of Kosgi mandal	Members planned

Milk is the daily income of many small farmers in Kosgi mandal, but a family selling a few litres alone takes whatever price is offered. In 2025, dairy farmers of Sarjakhanpet, Nacharam, Chandravancha and Thogapur formed the SNTC Milk Producers Mutually Aided Co-operative Society, registered as an FPO on 22 October 2025.

Today it has 269 members, led by chairman and chief promoter Sandil Harish Goud. Members' milk is collected and sold together, for a better and steadier price.

Members also work to cut the cost of feed by growing green fodder and making silage for the dry months (see K-044). For these families, dairy is the income beside agriculture that brings money in every day.

The FPO now plans a large milk collection centre for more than 1,000 farmers, and a dairy-based industry of its own.

SCIENTIFIC NOTE
Quick cooling after milking keeps milk quality; a chilling centre makes this possible.

EL NIÑO-READY
Fodder plots and silage keep milk flowing in dry months.

SUPPORT AVAILABLE
FPO scheme: up to ₹18 lakh over 3 years; AIF: 3% interest subvention.

Best suited to: villages with many small dairy farmers. **Plan for:** member participation, milk testing and reliable buyers.



K-049 HORTICULTURE · VEGETABLES

Tomatoes That Stand Tall

Staking keeps tomato fruit off the soil: cleaner, healthier and better priced.

KANCHIMPALLY MALLAPPA · Malreddypalli, Kosgi mandal, Narayanpet

20 guntas Staked tomato on mulch	**4 boxes** Of 20 kg picked a day, for 40 days
₹1.6 lakh Gross in 3 months · farmer-reported	**₹1.2 lakh** Net, after ₹40,000 of costs

Tomato plants left to sprawl lay their fruit on wet soil, where it rots and is hard to pick. Kanchimpally Mallappa of Malreddypalli stakes every plant, on beds under plastic mulch. His 20 guntas cost ₹40,000, stakes included.

Picking starts about 60 days after planting. For 40 days he picks 4 boxes of 20 kg a day, about ₹4,000 a day: ₹1,60,000 in a three-month crop, and ₹1,20,000 net.

> *"Cultivate tomatoes by the staking method. It is useful for getting quality, disease-free produce.*
> — KANCHIMPALLY MALLAPPA

Economics: 20 guntas, one crop

FARMER-REPORTED · PENDING VERIFICATION

Area	20 guntas (½ acre)
Crop duration	3 months; picking from day 60
Picking	4 boxes × 20 kg a day, 40 days
Total yield (calculated)	About 3.2 tonnes
Gross income	₹1,60,000 (₹4,000 a day)
Cost incl. staking	₹40,000
Net income	**₹1,20,000**

About ₹1,000 a box (₹50 a kg). Benefit–cost ratio 4.0.



Field visit: staked tomato on mulched beds, Malreddypalli.

SCIENTIFIC NOTE
Staking with mulch and drip cuts fruit rot and water use.

EL NIÑO-READY
Drip and mulch under staked tomato save water in dry spells.

SUPPORT AVAILABLE
Hybrid vegetables: MIDH, 40%. Mulch: MIDH, 50%. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: tomato growers near a good market. **Plan for:** stake and wire cost, tying labour, and fruit borer watch.



K-050 CLIMATE-SMART · DIRECT-SEEDED RICE

Paddy Without a Nursery

Broadcasting seed directly cuts transplanting labour by about ₹10,000 an acre.

G. VENKATRAMULU · Gundumal, Gundumal mandal, Narayanpet

₹10,000 Labour saved an acre · farmer-reported	**No nursery** Seed sown straight in the field
Fewer hands No transplanting needed	**24 qtl/acre** Yield · farmer-reported

Raising a nursery and transplanting paddy takes many hands, and at peak season workers are scarce and costly. G. Venkatramulu of Gundumal sows his 3 acres of paddy directly by broadcasting.

With no nursery and no transplanting, he saves about ₹10,000 an acre in labour, and the crop comes earlier. Weed control costs ₹2,400 an acre, and the crop yielded 24 quintals an acre, about 72 quintals from his 3 acres.

> *"At present there is a labour shortage, and in paddy the major problem is transplanting. We can overcome it with this method, and the paddy crop comes earlier.* — G. VENKATRAMULU

Economics: direct seeding vs transplanting

FARMER-REPORTED · PENDING VERIFICATION

Area	3 acres
Labour saved	**About ₹10,000 an acre**
Yield	24 quintals an acre
Total yield (calculated)	About 72 quintals
Weed control cost	₹2,400 an acre

Farmer-reported figures.

SCIENTIFIC NOTE

Weeds are the main challenge in direct-seeded rice: level the field well and use recommended pre- and post-emergence herbicides on time.

Direct seeding also uses less water for crop establishment.

GOOD PRACTICE

Use a seed drill or drum seeder where possible for even rows (see K-051).

EL NIÑO-READY

Less water for puddling and an earlier harvest suit a short or late monsoon.

Best suited to: paddy farmers short of transplanting labour. **Plan for:** good levelling and timely weed control.



K-051 MECHANISATION · PADDY

Rows of Paddy From a Drum

A simple drum seeder sows sprouted seed in lines and saves transplanting labour.

V. VENKATESH · Khajipur, Maddur mandal, Narayanpet

2 acres Sown a day by one person	**₹10,000** Saved an acre · farmer-reported
₹250 Drum seeder rent a day	**Even rows** Easier weeding

Transplanting a hectare of paddy takes 30–40 person-days. V. Venkatesh of Khajipur uses a drum seeder instead: a light plastic drum with holes that drops sprouted seed in neat rows as it is pulled across the puddled field.

One person sows 2 acres a day, and he saves about ₹10,000 an acre on nursery and transplanting labour. He hires the seeder for ₹250 a day. The crop comes up in even rows; weeds are the only problem to manage.

> *"With a drum seeder a single person can sow 2 acres a day, saving ₹10,000 an acre. The rent is only ₹250 a day and the rows come even. We only need to control weeds; the results are good.* — V. VENKATESH

Drum seeding vs transplanting

RESEARCH (ICAR, NICRA) AND HIS FIELD	
Crop establishment	5–6 hours by 3 people a ha
Seed	35–40 kg a ha
Harvest	7–10 days earlier
His sowing rate	2 acres a day, one person
His seeder rent	₹250 a day
His saving	**About ₹10,000 an acre**

First three rows are research figures; the last three are farmer-reported.

SCIENTIFIC NOTE

Drain standing water before seeding and keep the soil just wet for the first days so the seed roots.

Heavy rain right after sowing can wash seed away.

GOOD PRACTICE

Soak seed overnight; sow when the sprout is just visible.

EL NIÑO-READY

Less water for nursery and puddling, and an earlier harvest, suit a short monsoon.

SUPPORT AVAILABLE

Drum seeders: SMAM implement subsidy.

Best suited to: paddy farmers with level fields and labour shortages. **Plan for:** field levelling, drainage, and early weed control.

Data: farmer-reported, pending verification.



K-052 MECHANISATION · PADDY

A Machine That Plants Paddy

A transplanter does in hours what a team of workers does in days.

VIJAY KUMAR REDDY · Bhakthimalla, Gundumal mandal, Narayanpet

7 acres Transplanted by machine	**3 acres** Transplanted a day, 2 workers
2–3 litres Diesel a day · farmer-reported	**8 kg** Seed an acre (30 kg by hand)

When every farm in the village transplants at once, workers are hard to find. Vijay Kumar Reddy of Bhakthimalla owns a paddy transplanter, which plants young seedlings in straight rows at even spacing.

Seedlings are raised as a mat nursery and fed to the machine. With 2 workers and 2–3 litres of diesel he plants 3 acres a day; he covered his 7 acres this way at about ₹800 an acre. Even rows make weeding and spraying easier.

> *"We need to grow the nursery as a mat nursery; making the beds is the only difficulty. It needs less labour and less seed, the plants are uniform, and in less time we can transplant more area.* — VIJAY KUMAR REDDY

Transplanter at a glance

FARMER-REPORTED · PENDING VERIFICATION	
Area planted	7 acres
Machine	His own
Planting a day	3 acres, 2 workers
Diesel	2–3 litres a day
Seed an acre	8 kg (30 kg by hand)
Planting cost	₹2,400 for 3 acres
Cost an acre (calculated)	**About ₹800**

Farmer-reported figures.

SCIENTIFIC NOTE

Transplant young seedlings (about 2–3 weeks old from a mat nursery) for good establishment.

Even spacing gives each hill equal light and nutrients.

GOOD PRACTICE

Level and puddle the field well; drain to a thin film of water before planting.

EL NIÑO-READY

Timely planting with a machine avoids delays when the rains come late.

SUPPORT AVAILABLE

Transplanters and custom hiring centres: SMAM subsidy.

Best suited to: large paddy areas or groups of farmers. **Plan for:** machine cost, mat nursery skill, and field levelling.



K-053 ORGANIC FARMING · PADDY

Rice Grown the Organic Way

Paddy raised without chemicals, for a growing market in safe food.

RAGHAVENDER RAO · Maddur, Maddur mandal, Narayanpet

2 acres Paddy without chemicals	**24 qtl/acre** Yield · farmer-reported
₹3,500 A quintal	**₹69,000** Net an acre (calculated)

Buyers increasingly ask for rice grown without chemicals. Raghavender Rao of Maddur grows 2 acres of paddy organically, feeding the soil with farmyard manure and green manure instead of fertiliser bags.

His crop gave 24 quintals an acre, about 48 quintals from 2 acres, sold at ₹3,500 a quintal, against a cultivation cost of only ₹15,000 an acre.

> *"I have cultivated paddy without chemicals. At least for their own home use, farmers have to grow without chemicals, for their health.* — **RAGHAVENDER RAO**

Economics: organic paddy, per acre

FARMER-REPORTED · PENDING VERIFICATION	
Yield	24 quintals an acre
Price	₹3,500 a quintal
Gross income	₹84,000 an acre
Cost of cultivation	₹15,000 an acre
Net income	**₹69,000 an acre**
Net from 2 acres (calculated)	**About ₹1,38,000**

Gross = 24 × ₹3,500; net = gross − cost. Benefit–cost ratio 5.6.

SCIENTIFIC NOTE

Green manure crops such as dhaincha, ploughed in before planting, add nitrogen and organic matter.

Certified organic sale needs a conversion period and records.

GOOD PRACTICE

Join a farmer group for certification and collective marketing.

EL NIÑO-READY

Organic-rich soil holds more water through dry spells.

SUPPORT AVAILABLE

National Mission on Natural Farming (NMNF): training, bio-input centres and cluster support.

Best suited to: farmers with cattle manure and a direct buyer. **Plan for:** the conversion period, certification and marketing.



K-054 PULSES · BEST MANAGEMENT PRACTICES

Redgram Pinched for More Branches

BSMR redgram, dibbled and nipped at 45 and 90 days, branches out for a bigger crop.

MALYALA VIJAY KUMAR REDDY · Bhogaram, Kosgi mandal, Narayanpet

2 acres BSMR 736 redgram, dibbled	**45 & 90 days** Tips pinched for branching
12 qtl Expected an acre	**₹10,000+** Expected price a quintal

Malyala Vijay Kumar Reddy of Bhogaram grows 2 acres of BSMR 736 redgram, bred to resist wilt and sterility mosaic. He dibbles the seed at even spacing so each plant has room to spread.

At 45 and 90 days he pinches off the growing tips, so each plant throws out many more side branches, flowers and pods.

The crop is still in the field. He expects about 12 quintals an acre, at a cost of ₹20,000 an acre, and a price above ₹10,000 a quintal.

> *"With the best management practices, done at the right time, the crop gives the best yields. —*
> MALYALA VIJAY KUMAR REDDY

Economics: one acre (expected)

FARMER'S ESTIMATE · CROP IN THE FIELD	
Area	2 acres
Variety	BSMR 736
Expected yield	12 quintals an acre
Expected price	₹10,000+ a quintal
Expected gross	₹1,20,000 an acre
Cost of cultivation	₹20,000 an acre
Expected net	**₹1,00,000 an acre**

Expected figures; the crop is in the field.

SCIENTIFIC NOTE

Nipping the terminal bud breaks apical dominance, so the plant puts out more branches, flowers and pods.

GOOD PRACTICE

Treat seed with Trichoderma; intercrop with cotton or jowar (see K-016).

EL NIÑO-READY

Deep-rooted redgram tolerates long dry spells.

SUPPORT AVAILABLE

Mission for Aatmanirbharta in Pulses: seed kits; tur bought at MSP.

Best suited to: redgram growers who have lost crops to wilt. **Plan for:** pod borer control and timely sowing.



K-055

INTEGRATED FARMING · POULTRY, DAIRY AND CROPS

14.5 Acres, Many Incomes

Broilers, dairy, mango, vegetables and groundnut on one farm: about ₹20 lakh a year.

SANDIL HARISH GOUD · Sarjakhanpet, Kosgi mandal, Narayanpet

14.5 acres Integrated farm	**22,000** Broiler capacity, 2 sheds
₹20 lakh Earned a year · farmer-reported	**₹14 lakh** Net a year (calculated)

Sandil Harish Goud of Sarjakhanpet runs his 14.5 acres as one integrated business. Broilers in two sheds of 11,000 birds bring income every batch; 12 dairy animals give milk daily.

Mango covers 5 acres. Bottle gourd and other creeper vegetables, groundnut and fodder crops share the rest of the land.

Fodder crops feed the cattle, and poultry and cattle manure go back to the fields. Overall he earns about ₹20 lakh a year against a cultivation cost of about ₹6 lakh. He also chairs the SNTC dairy FPO (K-048).

> *"Farmers should not depend on a single income. Everyone has to take up integrated farming with many sources of income; only then will farmers grow economically.* — **SANDIL HARISH GOUD**

Economics: the whole farm, a year

FARMER-REPORTED	
Land	14.5 acres (mango 5 acres)
Poultry	Broiler, 22,000 capacity
Dairy	12 animals
Other crops	Vegetables, groundnut, fodder
Income	About ₹20,00,000
Cultivation cost	About ₹6,00,000
Net (calculated)	**About ₹14,00,000**

Net = income − cost. Benefit–cost ratio 3.3.

SCIENTIFIC NOTE

Integrated farming recycles nutrients: manure feeds the crops, and crops and fodder feed the animals. Different seasons spread the risk.

GOOD PRACTICE

Compost poultry litter; keep sheds airy; vaccinate on time.

EL NIÑO-READY

Many incomes: a dry year rarely hits them all.

SUPPORT AVAILABLE

NLM: poultry and dairy. MIDH: mango, vegetables. Drip: TGMIP.

Best suited to: young farmers ready to manage several enterprises. **Plan for:** capital, labour, disease control in birds and cattle, and market prices.



K-056 INTERCROPPING · PULSES AND MILLETS

Greengram With a Row of Jowar

Four rows of greengram, one of jowar: two harvests from 2.5 acres, and a richer soil.

URUMUNDALI VENKATRAMULU · Masaipally, Kosgi mandal

4 : 1 Greengram : jowar rows	**2.5 acres** Under the intercrop
₹70,000 Gross income · farmer-reported	**₹58,000** Net (calculated)

Four rows of greengram, then one row of jowar. On 2.5 acres, Urumundali Venkatramulu grows the two crops together in a simple 4 : 1 pattern.

Greengram is a short pulse; jowar, a hardy millet, stands taller in its own row, so they compete little.

From the 2.5 acres he harvested 6 quintals of greengram and 3 quintals of jowar: a gross income of about ₹70,000 against expenses of only ₹12,000.

Greengram is a legume. Its root nodules fix nitrogen from the air, enriching the soil for the jowar and for the next crop.

WHY THE INTERCROP WORKS

1 Two harvests from one field and one set of costs.

2 Greengram fixes nitrogen and enriches the soil.

3 Jowar gives grain, and its stalks feed cattle.

4 If one crop fails, the other still brings income.

Economics: 2.5 acres, two crops

FARMER-REPORTED	
Pattern	4 rows greengram : 1 row jowar
Greengram	6 quintals
Jowar	3 quintals
Expenses	₹12,000
Gross income	₹70,000
Net (calculated)	**₹58,000**

Net = gross − expenses. Benefit–cost ratio 5.8.

SCIENTIFIC NOTE

A legume grown with a cereal uses light, water and nutrients more fully than either crop alone, and leaves nitrogen in the soil.

GOOD PRACTICE

Treat greengram seed with Rhizobium; keep the 4 : 1 ratio so jowar does not shade the pulse.

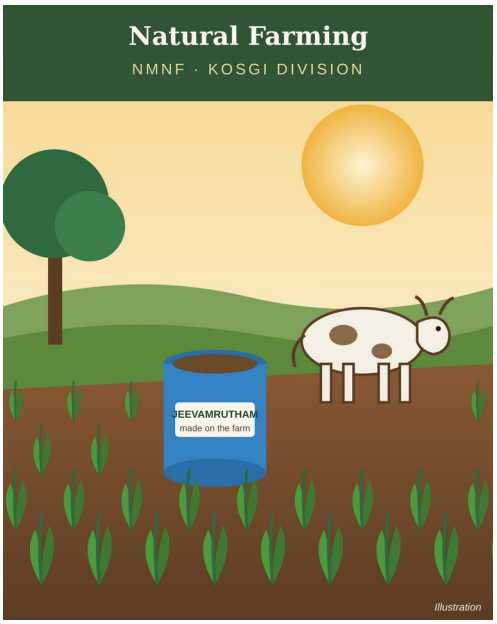
EL NIÑO-READY

Short greengram and hardy jowar both tolerate dry spells, and two crops spread the risk.

SUPPORT AVAILABLE

Mission for Aatmanirbharta in Pulses: seed kits and MSP procurement of pulses.

Best suited to: rainfed pulse and millet growers. **Plan for:** weeding between rows.



K-057 NATURAL FARMING · NMNF CLUSTERS

Four Clusters for Natural Farming

500 farmers in four NMNF clusters, served by a bio-input centre at PC Thanda.

NMNF CLUSTERS, KOSGI DIVISION · 4 clusters, all four mandals, Narayanpet

4 clusters One in each mandal	**500 farmers** 125 in each cluster
1 BRC Bio-input centre, PC Thanda	**Free** Soil tests and organic certification

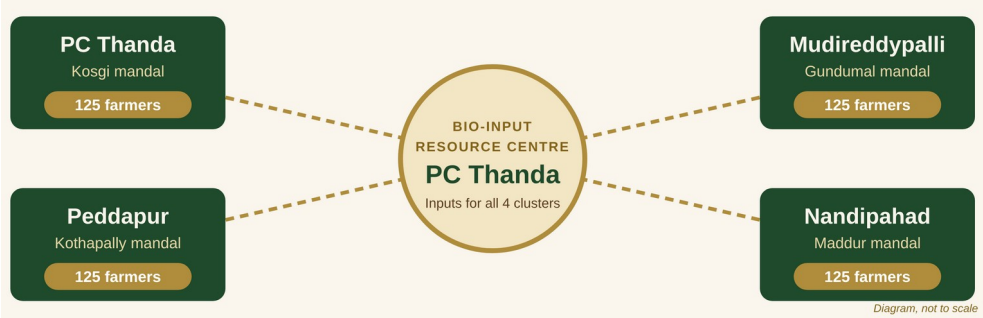
Natural farming spreads fastest when farmers learn together. Under the National Mission on Natural Farming (NMNF), Kosgi Division has organised four clusters of 125 farmers each: PC Thanda (Kosgi), Mudireddypalli (Gundumal), Peddapur (Kothapally) and Nandipahad (Maddur).

A Bio-input Resource Centre (BRC) at PC Thanda supplies inputs, and Krishi Sakhis, paid ₹5,000 a month, guide the farmers.

Each farmer receives support of ₹2,000 a year, and soil sample analysis and organic certification are provided free of cost.

Together, these lower the risk of moving away from chemicals and encourage more farmers to take up natural farming.

FOUR NMNF CLUSTERS AROUND ONE BIO-INPUT CENTRE



SCIENTIFIC NOTE

On-farm inputs such as jeevamrutham, mulching and mixed cropping build soil life and cut bought fertiliser and pesticide.

EL NIÑO-READY

Mulched soils rich in organic matter hold more moisture through dry spells.

SUPPORT AVAILABLE

NMNF: ₹2,000 a year a farmer, free soil testing and organic certification.

Best suited to: farmers ready to learn and work as a group. **Plan for:** a transition of two or three seasons, and time to prepare inputs.



K-058 HORTICULTURE · VEGETABLE TREE

Drumstick on Drip: A Cash Crop for Every Season

One planting of munaga gives pods for 2–3 years and earns ₹1.2 lakh an acre.

KOLUKONDI GOPI KIRAN · Malreddypalli, Kosgi mandal, Narayanpet

₹50,000 Establishment cost	**₹1.2 lakh** Gross a year an acre · farmer-reported
₹70,000+ Net a year an acre	**2–3 years** Of yield from one planting, on drip

Munaga, drumstick, thrives where other vegetables struggle. It needs little water, grows on poor red soils and keeps bearing. Kolukondi Gopi Kiran of Malreddypalli has planted an orchard of it in straight rows on drip.

Establishing the plantation cost him about ₹50,000. With good management, one planting gives pods for two to three years.

He reports a gross income of about ₹1,20,000 an acre a year, and a net of at least ₹70,000. Pods sell fresh in every season, and tender leaves are in demand too.

> *"Drumstick is a cash crop with good demand in every season. If we select a good variety and grow it with drip, we can get good yields.* — **KOLUKONDI GOPI KIRAN**

Economics: drumstick plantation

FARMER-REPORTED · PENDING VERIFICATION	
Establishment cost	₹50,000
Gross income	₹1,20,000 an acre a year
Net income	**₹70,000+ an acre a year**
Crop life	2–3 years from one planting
Irrigation	Drip

Net as reported by the farmer (at least).



Field visit in his drumstick plantation on drip.

SCIENTIFIC NOTE
Pinch the main shoot at about 75 cm so trees branch low; cut back after each season (ratooning) for a fresh crop.

EL NIÑO-READY
A deep-rooted tree that keeps bearing through dry spells.

SUPPORT AVAILABLE
Vegetable and perennial planting: MIDH. Drip and sprinklers: TGMIP, 80–100%.

Best suited to: dry, red-soil farms. **Plan for:** price swings in peak season and caterpillar outbreaks.



K-059 SOIL HEALTH · ORGANIC INPUTS

Turning Waste Into Black Gold

Earthworms convert dung and crop waste into rich vermicompost.

KHAN ASLAM DURRANI · Kosgi, Kosgi mandal, Narayanpet

Earthworms Do the work	**Dung, residues** The raw material
~2 months To ready compost	**₹50,000** Saved a season · farmer-reported

Every farm has waste: cattle dung, crop residues, fallen leaves. Khan Aslam Durrani turns his into vermicompost, a dark, crumbly manure made by earthworms.

The compost goes back to his orchards and fields, saving him about ₹50,000 a season on bought fertiliser. It is part of the cycle that ties his crops and livestock together (see K-003).

Vermicompost at a glance

FARMER-REPORTED · PENDING VERIFICATION	
Raw material	Cattle dung, crop residues
Used on	His orchards and fields
Saving on fertiliser	**About ₹50,000 a season**

Farmer-reported.

SCIENTIFIC NOTE

Eisenia fetida, the common composting worm, works best in a shaded, moist bed.

Partly decomposed dung (about 2–3 weeks old) suits the worms better than fresh dung.

GOOD PRACTICE

Keep beds shaded and moist, not wet; protect from ants and birds.

EL NIÑO-READY

Compost-rich soil holds more water through dry spells.

SUPPORT AVAILABLE

Vermicompost units: MIDH and NMNF support.

Best suited to: any farm with cattle and crop residues. **Plan for:** shade, moisture, and protecting the worms.



K-060

NEXT GENERATION · AGRICULTURE EDUCATION

Farmers of Tomorrow

Upanishad School takes its students out of the classroom and into the paddy field.

UPANISHAD INTERNATIONAL SCHOOL · Nacharam, Kosgi mandal, Narayanpet

School farm Worked by the students	**Transplanting** Paddy planted by hand
Learning By doing, not only by reading	**Nacharam** Kosgi mandal

Fewer young people want to farm, and many children no longer know where their food comes from. Upanishad International School in Nacharam is changing that on its own school farm.

Here agriculture is taught with the hands, not only from books. The students step into the puddled field and transplant paddy seedlings themselves, the same work that farm families do every season.

Standing in the mud, bent over the rows, they learn how much effort goes into every plate of rice: preparing the field, raising seedlings, planting, weeding, watering and waiting for harvest.

Learning by doing teaches what no textbook can: respect for the farmer, the value of food and water, and the skills to take farming forward.

WHY IT MATTERS

The innovations in this book will last only if the next generation knows where food comes from and how hard it is to grow.

WHAT THE FIELD TEACHES

1
Where our food comes from: from seed to seedling to grain.

2
The hard work behind every meal, and respect for those who do it.

3
Science in the field: soil, water, seasons and plant growth.

4
Pride in farming, so the next generation chooses to carry it on.

GOOD PRACTICE

Link each class with a farmer mentor from the village, and follow one crop from sowing to harvest.

EL NIÑO-READY

Students who learn early about drip, mulch and saving water carry those habits home.

SUPPORT AVAILABLE

The Agriculture Department can support schools by teaching agricultural practices to students.

Best suited to: any school with a little land and water. **Plan for:** a teacher in charge, the farm calendar, and care during holidays.

Twelve Methods Worth Copying

Simple, low-cost methods the farmers in this book use every day. Each can be copied on other farms.



01 Light trap

K-001 · NAGESH GOUD, KOMMUR · PAGE 18

A lamp is fixed on a pandal pillar above a basin of water. Night-flying insects drawn to the light fall into the water and drown. Used with pheromone traps for fruit fly, it replaces routine spraying.

Benefit: Fewer sprays, lower cost. Switch on only at peak pest times, as it also catches useful insects.



02 Bottle trap

K-008 · RAGHAVENDER, MADDUR · PAGE 30

A plastic bottle is half-filled with water, two small openings are cut in the side and 2–3 drops of tulsi–clove extract are added. About 20 bottles hung across half an acre catch pod flies.

Benefit: Home-made from waste bottles; costs almost nothing.



03 Yellow sticky traps

K-012 · THUDUM HANMANTHU, THOGAPUR · PAGE 38

Bright yellow sheets coated with glue are set just above the crop. Whitefly, aphids and other sucking pests that spread virus disease are drawn to the colour and stick to the sheet.

Benefit: Shows pest build-up early and cuts the number of sprays.

Twelve Methods Worth Copying



04 Weed mat

K-014 · RAM CHANDRAIAH, BALABADRAIAPALLE · PAGE 42

A woven ground-cover mat is laid along the pomegranate rows, with the drip line beside the plants. Light cannot reach the soil, so weeds cannot grow, and less water is lost from the surface.

Benefit: Clean rows with little weeding labour; bought with a 50% subsidy.

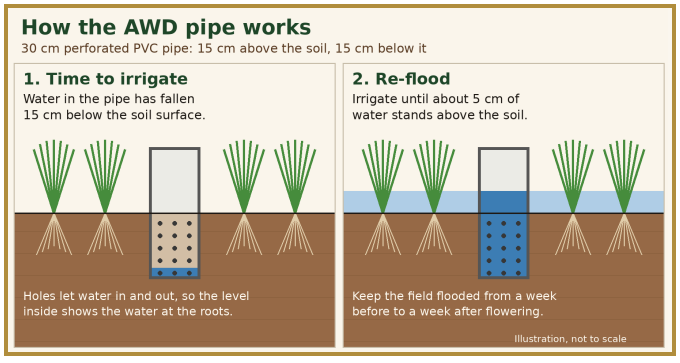


05 Twin-row redgram

K-017 · C. ABDUL LATEEF, NAGASANPALLY · PAGE 48

Seed is dibbled by hand in pairs of rows with a wide gap between each pair, about 2,000 plants an acre, watered by low-cost drip. Light and air reach every plant, which branches more and bears more pods.

Benefit: About 12 quintals an acre against 5–6 by the usual method (farmer-reported).



06 AWD pipe in paddy

K-019 · VENKATAIAH, CHENNARAM · PAGE 52

A 30 cm PVC pipe, holed in its lower half, is set 15 cm into the soil. When the water in the pipe falls 15 cm below the soil, the field is irrigated back to about 5 cm. The field dries in between.

Benefit: About half the water, by the farmer's estimate, with no loss of crop.

Twelve Methods Worth Copying

07 Relay blackgram

K-020 · KADAPANI SANGAPPA, EKKAMADE · PAGE 53

About 15 days before the paddy harvest, blackgram seed is broadcast into the standing crop at 8 kg an acre. It germinates in the moist field and grows on leftover moisture, with no ploughing or irrigation.

Benefit: A second crop from the same field, and nitrogen for the soil.

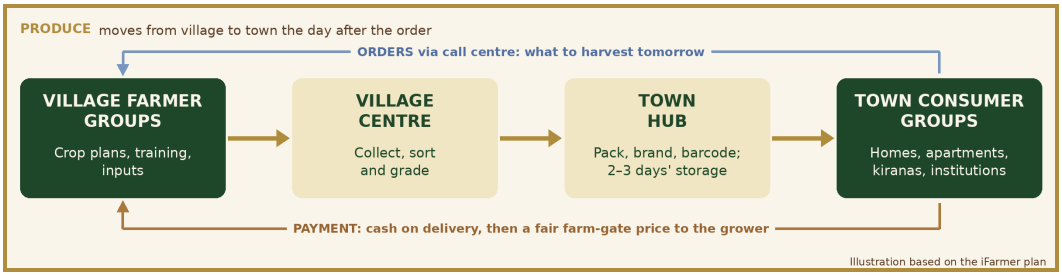


08 iFarmer: farm to home

K-024 · PROPOSED MARKETING MODEL · PAGE 58

Village farmer groups sell straight to consumer groups in town. Produce is graded and packed near the farm and delivered the next day, paid on delivery, cutting the middle layers from five to two.

Benefit: An assured market and a fair price for farmers who diversify.



09 Rain pipe for leafy vegetables

K-027 · AVUTI MANIKYAPPA, MUNGIMALLA · PAGE 62

A flat perforated pipe laid along the beds sprays fine, rain-like drops (thumparlu) over the greens for about 10 minutes a day: enough for the crop and gentle on tender leaves.

Benefit: A small water source keeps beds productive; low cost.



Twelve Methods Worth Copying



10 Low-cost wheel-hoe weeder

K-038 · MADUGU VENKATAPPA, MUNGIMALLA · PAGE 77

A light, hand-pushed wheel hoe is run between the crop rows. Its blade cuts weeds just below the surface and loosens the topsoil as it goes.

Benefit: Low cost and easy to handle; cuts the cost of weeding labour.

11 Low-cost temporary pandal

K-039 · KANCHIMPALLY KRISHNAIAH, MALREDDYPALLY · PAGE 78

Iron rods and J-wire form an overhead frame over mulched beds, and bitter gourd vines are trained up onto it. The fruit hangs clean and straight, clear of the wet soil.

Benefit: About ₹30,000 an acre, and two or three crops a year on one frame.





12 Silage in drums

K-044 · KHAN ASLAM DURRANI, KOSGI · PAGE 83

Surplus green fodder is chaffed, mixed with jaggery, pressed down to drive out air and sealed in airtight drums. He fills 30 drums and feeds the silage when grass is scarce in summer.

Benefit: Fodder for the dry months, and more milk when grass runs out.



AI-generated illustration

TECHNICAL GUIDE

From Mono Cropping to Crop Diversification

Why to diversify, how to manage water in an El Niño year, and how to manage the commercial crops of Kosgi Division.

Why Diversify: Breaking the Mono-Cropping Cycle

Mono-cropping, growing the same crop on the same land season after season, concentrates all of a family's risk in one place. Diversification spreads that risk across crops, seasons, enterprises and markets, so that a single failure does not take the whole year's income. The sixty farmers in this book did not abandon their main crops; they added to them.

FOUR RISKS OF MONO-CROPPING

Price risk
When every farm grows the same crop, everyone sells in the same week and prices fall.

Pests and diseases
The same host every season lets pests and diseases build up; spray costs rise year after year.

Soil mining
One crop removes the same nutrients and leaves the soil poorer in organic matter.

Water stress
Paddy after paddy draws heavily on borewells; in a dry year the whole crop is at risk.

THE FOUR-INCOME FARM

Field crops
SEASONAL INCOME
Paddy, cotton, redgram, castor, groundnut, millets, pulses
See K-006, K-016, K-020, K-031

Horticulture
DAILY TO SEASONAL
Vegetables, flowers, fruit orchards, plantation crops
See K-004, K-014, K-027, K-028

Livestock and allied
DAILY TO MONTHLY
Dairy, sheep and goats, poultry, sericulture, fish
See K-011, K-025, K-036, K-041

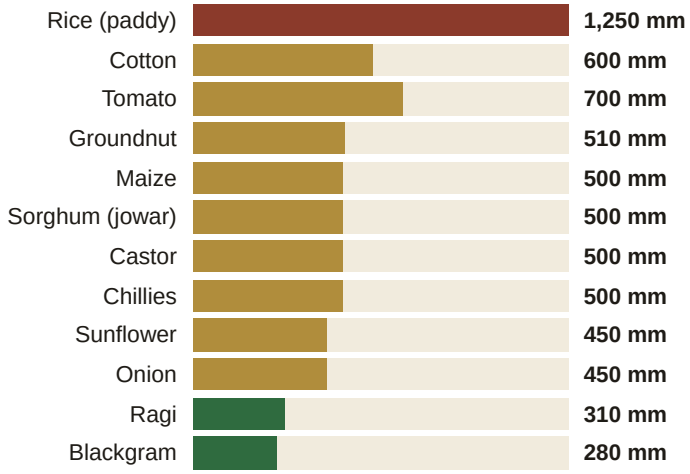
Value addition and enterprise
YEAR-ROUND
Processing, oil units, machinery services, FPOs, direct marketing
See K-010, K-024, K-029, K-045

SIX PRINCIPLES OF DIVERSIFICATION

1. **Match the crop to the water**
   Count the water you have before choosing the crop (Guide 2).
2. **Spread income across time**
   Combine a daily earner (vegetables, milk, flowers), a monthly earner (silk, leafy greens) and a seasonal crop.
3. **Always include a legume**
   Redgram, blackgram, greengram or a green manure fixes nitrogen and breaks pest cycles.
4. **Grow for a market**
   Know the buyer and the festival or season of best price before sowing.
5. **Start small, then scale**
   Ten to twenty guntas of a new crop is enough to learn; expand after one good season.
6. **Recycle farm waste**
   Manure, crop residue and compost return organic matter to the soil and cut fertiliser bills.

Water Decides the Crop

SEASONAL WATER REQUIREMENT OF COMMON CROPS



Indicative crop water requirement per season, in millimetres. Sources: TNAU Agritech Portal; iKisan crop guides (midpoint of the range where a range is given). Actual need varies with soil, season, variety and irrigation method; FAO gives wider ranges (for example cotton 700–1,300 mm, maize 500–800 mm).

THE WATER OF ONE ACRE OF PADDY CAN GROW…

2.5 acres of groundnut	**2.5** acres of maize
2.5 acres of castor	**2.8** acres of sunflower
4.0 acres of ragi	**4.5** acres of blackgram

Arithmetic from the chart: 1,250 mm ÷ crop requirement. A rough guide for planning, not a field measurement. Farmers in this book report similar gains: castor (K-031) and watermelon (K-009).

1 mm of water on 1 acre = about 4,047 litres. So 1,250 mm on one acre of paddy is about 50 lakh litres in a season.

DIVERSIFICATION OPTIONS FOR KOSGI DIVISION, BY WATER AVAILABLE

WATER AVAILABLE	VANAKALAM (KHARIF)	YASANGI (RABI)	SEE STORIES
Rainfed only	Redgram with intercrops (cotton, jowar, greengram); castor; millets; greengram and blackgram	Horsegram or blackgram on residual moisture	K-016, K-017, K-054
Limited water: a weak borewell, 1–3 irrigations	Castor, groundnut, maize on drip; vegetables on 10–20 guntas	Relay blackgram in rice fallows; sunflower, safflower, groundnut on sprinklers	K-020, K-031, K-032
Assured water with drip	Vegetables, flowers, papaya, pomegranate, high-density mango, sweet orange, oil palm, mulberry	Cool-season vegetables, flowers, orchard care	K-001, K-013, K-014, K-028
With livestock	Fodder: hybrid napier, fodder sorghum, maize for silage	Silage stocks, azolla, hydroponic fodder for the dry months	K-025, K-036, K-044

El Niño 2026–27: What It Means for Our Farms

El Niño is an unusual warming of the sea surface in the central and eastern Pacific Ocean. It shifts rainfall patterns around the world, and in India it is usually linked to weaker or uneven rainfall and warmer temperatures. A strong El Niño has developed in 2026, and the Yasangi season will be planned under it.

THE OFFICIAL OUTLOOK

IMD, 29 OCTOBER 2026
El Niño conditions of strong to very strong intensity are expected to persist through January–March 2027.

IMD, 31 OCTOBER 2026
A very strong El Niño is expected in November–December. Below-normal November rainfall is likely over much of Telangana, with above-normal maximum temperatures.

WMO, 21 OCTOBER 2026
The sea-surface temperature anomaly in the Niño 3.4 region is forecast at about +3.8 °C for November 2026–January 2027.

Follow the district forecasts and agro-advisories of IMD (Meghdoot and Mausam apps) and the Agriculture Department every week; local rainfall can differ from the regional outlook.

LIKELY EFFECTS IN KOSGI DIVISION

Less recharge
Low rain in the Yasangi months means borewells recharge less; yields may fall from February to May.

Heat at flowering
Warm days in February–April can cut grain and pod set in late-sown paddy, groundnut and vegetables.

Sucking pests and mites
Dry, warm weather favours thrips, whitefly, mites and the viruses they spread.

Fodder and drinking water
By summer 2027, green fodder and water for livestock may be scarce.

PLAN BY YOUR WATER BUDGET: A WORKED EXAMPLE

Step 1. Measure the borewell: fill a drum of known size and time it. Example: 4,000 litres an hour.

Step 2. Hours of power a day × litres an hour = daily water. Example: 6 hours × 4,000 = 24,000 litres.

Step 3. At peak, a full crop uses about 5 mm a day, or about 20,000 litres an acre.

Step 4. Allow for losses: drip delivers about 90% of the water to the roots; flooding about 45%.

RESULT

1 acre
can be carried to harvest on drip

½ acre
with flood irrigation

Sow only the area the water can carry to harvest. Irrigation efficiencies: drip about 90%, surface methods 35–50% (ICAR).

Ten Water-Wise Actions

Every litre saved in Yasangi is a litre available in the summer. These methods are proven in research and in the fields of Kosgi Division.

	ACTION	HOW IT WORKS	WHAT IT SAVES	IN THIS BOOK
1	**Drip irrigation with fertigation**	Water and fertiliser go straight to the root zone.	50–60% less water and 20–25% higher yield than surface irrigation (ICAR-IIWM). In maize, 31–34% water saved (PJTSAU study).	K-014, K-017, K-028
2	**Plastic mulch on drip**	Covers the bed; holes for plants only.	Cuts evaporation and weeds; keeps soil moist and cool.	K-001, K-015, K-032, K-035
3	**Sprinklers and rain pipes**	For groundnut, leafy vegetables, close-spaced crops.	25–33% water saving over surface irrigation in reported studies.	K-027
4	**Alternate wetting and drying (AWD)**	Re-flood paddy only when water in a field pipe falls 15 cm below the soil.	15–30% less water without yield loss (ICAR-IIRR, Hyderabad).	K-019
5	**Direct-seeded rice**	Sow paddy seed directly; no nursery, no puddling.	About 40% water saving and 10–15 days shorter duration (ICAR-IIRR).	K-050, K-051
6	**Shift part of the paddy area**	Grow castor, groundnut, maize, pulses or millets on part of the land.	One acre of paddy water can grow 2.4–4.5 acres of dry crops (Guide 1).	K-009, K-031
7	**Relay pulses on residual moisture**	Broadcast blackgram or greengram into standing paddy before harvest.	A second crop with no irrigation; adds nitrogen to the soil.	K-020
8	**Farm pond**	Store runoff for one or two life-saving irrigations.	Saves a crop at flowering in a dry spell; supports fish.	K-034
9	**Borewell recharge structure**	Filter pit around the borewell to send rainwater down.	Helps restore borewell yield after the rains.	Guide 2
10	**Organic matter and residue mulch**	Green manure, compost, crop residue on the surface.	More organic matter holds more water in the root zone.	K-033, K-059

Savings are ranges reported by the institutions named; results on a given farm depend on soil, crop and management.

Water at the Right Time

When water is short, timing matters more than quantity. Each crop has stages when stress cuts yield the most. Save water at other stages and protect these.

CRITICAL STAGES FOR IRRIGATION

CROP	CRITICAL STAGE	IF WATER IS SHORT
Paddy	Panicle initiation and flowering	Keep 2–5 cm of water at flowering; use AWD at other stages.
Groundnut	Flowering, pegging and pod development	Never let the soil dry at pegging; apply gypsum at flowering.
Maize	Tasselling and silking	Give priority irrigation in the two weeks around silking.
Sunflower	2 weeks before to 2 weeks after flowering	One irrigation at flowering adds most to seed filling.
Cotton	Flowering and boll development	Protective irrigation through drip or alternate furrows.
Chillies and vegetables	Flowering and fruit set	Light, frequent irrigation on drip; mulch the beds.
Redgram and pulses	Flowering and pod filling	One protective irrigation gives a large yield gain.
Mango and sweet orange	Fruit set and fruit growth	In mango, hold back water before flowering; irrigate after fruit set.

Critical stages as given in iKisan and state crop production guides.

EL NIÑO CONTINGENCY PLAN · YASANGI 2026–27

1. Check borewell yield before sowing and sow only the area the water can carry to harvest.
2. Prefer short-duration varieties and sow on time; avoid late paddy that would flower in the April heat.
3. Choose low-water crops for part of the land: groundnut, sunflower, safflower, maize, pulses, millets, vegetables on drip.
4. Mulch, remove weeds early and irrigate at night or early morning to cut losses.
5. Watch for thrips, whitefly and mites in dry weather; use sticky traps and spray only when needed.
6. Build fodder stocks now: silage, azolla and hydroponic fodder, and plan drinking water for animals.
7. Follow the weekly IMD and Agriculture Department advisories.

Managing the Commercial Crops: Field Crops

Paddy

WATER: HIGH

GOOD PRACTICE

- Fertiliser by soil test; split nitrogen into three doses; apply zinc where the soil is deficient.
- Use AWD from about two weeks after transplanting until flowering (K-019).
- Save water and labour with direct seeding, drum seeders or transplanters (K-050–K-052).
- Leave 20 cm alleyways every 2 m for air and light.

PESTS AND DISEASES

- Brown planthopper: avoid excess urea, drain the field, use alleyways; avoid synthetic pyrethroids, which cause resurgence.
- Stem borer: pheromone traps for monitoring; blast: balanced nitrogen and resistant varieties.

El Niño: Grow Yasangi paddy only where water lasts to harvest; choose short-duration varieties; shift part of the area to dry crops.

Cotton

WATER: MEDIUM

GOOD PRACTICE

- Sow after the soil is wet enough; high-density planting where advised by PJTSAU.
- Intercrop with redgram (K-016) or plant border rows of maize or jowar.
- Drip in cotton has given about 30% water saving and 21% higher yield (ICAR study).

PESTS AND DISEASES

- Pink bollworm: pheromone traps, removal of rosette flowers, timely end of the crop; no extended or ratoon crop.
- Sucking pests: yellow sticky traps; conserve natural enemies; avoid early broad-spectrum sprays.

El Niño: Give protective irrigation at flowering and boll development; mulch with residue between rows.

Redgram

WATER: LOW

GOOD PRACTICE

- Wilt- and sterility mosaic-resistant varieties such as BSMR 736 (K-054).
- Wide or twin rows with drip increase branching and pods (K-017).
- Seed treatment with Rhizobium and PSB; intercrop with cotton, jowar or greengram.

PESTS AND DISEASES

- Pod borers: bird perches, pheromone traps, neem seed kernel extract (5%) at flowering, HaNPV.
- Wilt: resistant varieties, crop rotation, no waterlogging.

El Niño: Deep roots tolerate dry spells; one protective irrigation at flowering and pod filling gives a large yield gain.

Groundnut

WATER: MEDIUM

GOOD PRACTICE

- Seed treatment with Trichoderma against collar and root rot.
- Gypsum at 200 kg an acre at flowering for well-filled pods (K-066).
- Rainfed kharif: groundnut + redgram intercrop in a 7:1 row ratio.

PESTS AND DISEASES

- Leaf miner and Spodoptera: light and pheromone traps; castor as a trap crop on borders.
- Leaf spots and rust: clean seed, rotation and timely protection.

El Niño: Use sprinklers in Yasangi; never let the soil dry at flowering and pegging.

Field Crops: Maize, Oilseeds and Pulses

Maize

WATER: MEDIUM

GOOD PRACTICE

- Hybrids suited to the season; fertiliser in splits by soil test.
- Drip in maize saved 31–34% water with higher yields in PJTSAU farm studies.
- Baby corn and sweet corn fetch higher prices in towns (K-064, K-065).

PESTS AND DISEASES

- Fall armyworm: scout the whorls weekly; destroy egg masses; pheromone traps; spray into the whorl only when damage crosses the threshold.

El Niño: Protect the tasselling and silking stage above all; stalks make good silage (K-044).

Castor

WATER: LOW

GOOD PRACTICE

- Hardy oilseed for red soils; wilt-resistant hybrids.
- A farmer in this book grows three acres with the water of one acre of paddy (K-031).
- Collect spikes as they mature to avoid shattering.

PESTS AND DISEASES

- Semilooper and Spodoptera: early scouting, hand collection of egg masses, need-based spray.
- Gray mold after rain or cloudy weather at spike stage: propiconazole 0.1% (ICAR-IIOR).

El Niño: Needs little irrigation; one watering at spike formation in a long dry spell protects yield.

Sunflower

WATER: LOW–MEDIUM

GOOD PRACTICE

- Short-duration hybrids for Yasangi (K-063).
- Borax spray (0.2%) at ray-floret opening and gentle hand pollination improve seed set.
- Keep bee boxes nearby; bees raise seed filling (K-082).

PESTS AND DISEASES

- Necrosis virus spread by thrips: remove parthenium weed, control thrips early.
- Head borer: pheromone traps; bird scaring at maturity.

El Niño: The critical window is two weeks before to two weeks after flowering; irrigate then if water is limited.

Pulses: greengram, blackgram, bengal gram

WATER: LOW

GOOD PRACTICE

- Relay sowing in rice fallows on residual moisture (K-020).
- Rhizobium seed treatment; yellow mosaic-tolerant varieties.
- Free seed kits and MSP procurement under the Pulses Mission.

PESTS AND DISEASES

- Yellow mosaic: yellow sticky traps for whitefly; remove infected plants early.
- Pod borer in bengal gram: bird perches, neem extract, pheromone traps.

El Niño: The lowest-water crops in this guide: about 280 mm for blackgram (TNAU); ideal in an El Niño year.

Vegetables and Flowers

Tomato, brinjal and chilli

WATER: MEDIUM

GOOD PRACTICE

- Raised beds, drip and mulch; grafted seedlings for vigour and soil-borne disease tolerance (K-015).
- Stake tomato for clean fruit and longer picking (K-049).
- Raise chilli nurseries under insect-proof net to keep out virus vectors.

PESTS AND DISEASES

- Fruit borer in tomato: African marigold as a trap crop, one row for every 16 rows of tomato.
- Brinjal shoot and fruit borer: pheromone traps; cut and destroy affected shoots; whitefly and thrips: sticky traps.

El Niño: Drip and mulch together; shade nets for nurseries in the heat.

Creepers: gourds and beans

WATER: MEDIUM

GOOD PRACTICE

- Grow on bamboo or wire pandals for clean, straight fruit and easy picking (K-008, K-039).
- Grafting on pumpkin rootstock gives vigour and an early crop (K-001).
- Drip and mulch on beds; pick every two to three days.

PESTS AND DISEASES

- Fruit fly: cue-lure traps, bury fallen fruit; light traps for moths.
- Downy and powdery mildew: wider spacing on pandals for airflow.

El Niño: Short crops with steady daily income; plant small areas in stages to match the water.

Leafy vegetables

WATER: LOW–MEDIUM

GOOD PRACTICE

- Sow in rotation, 10 guntas at a time, for daily harvest (K-027).
- Rain pipes or sprinklers give light, even watering in minutes.
- Plenty of compost; most greens are ready in 25–40 days.

PESTS AND DISEASES

- Leaf-eating caterpillars: neem-based sprays; avoid chemical sprays close to harvest.
- Weeds are the main problem: hand weeding and close spacing.

El Niño: Ten minutes of rain-pipe watering a day keeps beds productive; ideal for a weak borewell.

Flowers: marigold, jasmine, kanakambaram

WATER: MEDIUM

GOOD PRACTICE

- Time marigold planting about two months before Dasara, Deepavali and Karthika (K-023).
- Pinch marigold tips a month after planting for more branches and flowers.
- Jasmine and kanakambaram give daily income from small plots (K-004, K-005).

PESTS AND DISEASES

- Mites and thrips in dry weather: sticky traps, water sprays, need-based acaricide.
- Root-knot nematode: marigold rotation, neem cake, healthy planting material.

El Niño: Drip on small plots; flowers fit well as intercrops in young orchards.

Fruit and Plantation Crops

Mango

WATER: LOW–MEDIUM

GOOD PRACTICE

- High-density planting with pruning bears early; ICAR-CISH reports 14–15 t a hectare against 7–8 t in traditional orchards (K-028).
- Old orchards can be rejuvenated by heading back (K-043).
- Withhold irrigation before flowering; irrigate after fruit set.

PESTS AND DISEASES

- Hoppers at panicle emergence; powdery mildew: sulphur sprays.
- Fruit fly: methyl eugenol traps from fruit set.

El Niño: Mulch basins with leaves; a farm pond gives life-saving water in summer (K-034).

Sweet orange (battai)

WATER: MEDIUM

GOOD PRACTICE

- Drip with double-ring basins so water does not touch the trunk.
- Bordeaux paste on the trunk against foot rot; regular nutrition with micronutrients.
- Marigold or vegetables as intercrops in young orchards (K-023).

PESTS AND DISEASES

- Foot rot (Phytophthora): good drainage, trunk kept dry.
- Citrus psylla and leaf miner on new flushes: monitor and act early.

El Niño: Water stress during fruit growth causes fruit drop; keep drip running at low rates.

Pomegranate and papaya

WATER: MEDIUM

GOOD PRACTICE

- Pomegranate: drip, bahar (crop) regulation and fruit bagging (K-014).
- Papaya: healthy seedlings raised under net; drip; no waterlogging (K-002).
- Both fit well with short intercrops in the first year.

PESTS AND DISEASES

- Pomegranate bacterial blight: sanitation, prune and destroy infected parts.
- Papaya ring spot virus: barrier crops, sticky traps, remove infected plants at once.

El Niño: Mulch and drip are essential; papaya cannot tolerate either drought or standing water.

Oil palm

WATER: HIGH

GOOD PRACTICE

- Plant only where water is assured year-round; drip or micro-sprinklers.
- Intercrop vegetables, pulses or flowers in the first three to four years (K-047).
- Support under NMEO-OP for planting material and maintenance (K-013).

PESTS AND DISEASES

- Rhinoceros beetle: clean the crown, destroy breeding sites in manure pits.
- Bud rot: avoid water stagnation; remove affected tissue early.

El Niño: Do not let basins dry; mulch with pruned fronds and keep the drip running in summer.

SAFE AND SMART CROP PROTECTION

Scout first and spray only when the pest crosses its threshold · Buy pesticides with a bill from a licensed dealer · Use the label dose; never mix cocktails of several products · Wear gloves and a mask; never spray against the wind · Respect the waiting period before harvest · Never reuse empty containers · Spray drones to be used as per the approved procedure (K-010).

Support Schemes at a Glance

The schemes named in the *Support available* notes of the stories, in one place. Rates are as published in 2026 and change from time to time.

NEED	SCHEME	SUPPORT
Investment support	Rythu Bharosa (Telangana)	₹12,000 an acre a year, paid as ₹6,000 an acre each season
Drip and sprinklers	TGMIP (Telangana Micro Irrigation Project)	SC/ST farmers 100%; BC and small or marginal farmers 90%; others 80%
Plastic mulch	MIDH	50% of the cost norm
Hybrid vegetables, flowers	MIDH	40% of the cost norm; flowers 40% for small and marginal farmers
New fruit orchards	MIDH, area expansion	High-density with drip: 40% up to ₹60,000 a hectare, paid 60:20:20 over three years
Oil palm	NMEO-OP	Planting material and maintenance support for the first four years
Pulses and oilseeds	Pulses Mission; NMEO-Oilseeds	Free seed kits; MSP procurement of tur, urad and masoor
Green manure seed	Department of Agriculture, Telangana	50% subsidy, through PACS
Machinery and drones	SMAM	Drones: 50% up to ₹5 lakh or 40% up to ₹4 lakh by category; custom hiring centres 40%
Sheep and goats	National Livestock Mission	100 + 5 unit: 50% capital subsidy up to ₹10 lakh
Farm ponds, recharge pits	VB-G RAM G (rural employment)	Permitted works on farmers' land
Solar pumps	PM-KUSUM	Central assistance 30% of benchmark cost; state at least 30%; farmer the balance
Farmer producer organisations	10,000 FPO scheme; AIF	₹18 lakh over three years and ₹2,000 equity grant a member; AIF: 3% interest subvention on loans up to ₹2 crore
Natural farming	National Mission on Natural Farming	Training, bio-input resource centres, cluster support
Turmeric	National Turmeric Board, Nizamabad	Market and export development for turmeric growers

The Next Forty Activities

The second half of Project K-100. Each activity will be taken up by one farmer in the Yasangi season of 2026–27 and documented in the same way as the stories in Part II. Water labels show the activity's field water need, a key consideration in this El Niño year. Farmer names will be added as the activities are taken up.

K-061 **Sweet orange (battai): best agronomic practices** — FRUIT ORCHARD · MEDIUM WATER
Drip with double-ring basins, trunk kept dry against foot rot, balanced nutrition and crop regulation to reduce fruit drop.

K-062 **Saaf flowers (safflower)** — OILSEED · LOW WATER
Deep-rooted rabi oilseed that grows on residual moisture; seed for oil and petals for natural colour.

K-063 **Sunflower** — OILSEED · LOW WATER
Short-duration hybrid; borax spray and hand pollination raise seed set; irrigate around flowering.

K-064 **Baby corn** — VEGETABLE · MEDIUM WATER
Cobs picked young, about 50–60 days after sowing; green stalks as fodder; hotel and town markets.

K-065 **Sweet corn** — VEGETABLE · MEDIUM WATER
Fresh cobs for town markets in about 80–90 days; stalks as fodder.

K-066 **Groundnut: gypsum and drum rolling** — OILSEED · MEDIUM WATER
Gypsum at flowering supplies calcium for filled pods; drum rolling helps pegs enter the soil; sprinklers save water.

K-067 **Kheera (cucumber)** — VEGETABLE · MEDIUM WATER
Short crop on trellis with drip and mulch; first pickings about six weeks after sowing.

K-068 **Cauliflower** — VEGETABLE · MEDIUM WATER
Cool-season crop for November–February; boron and molybdenum prevent browning and whiptail.

K-069 **Cabbage** — VEGETABLE · MEDIUM WATER
Cool-season crop; mustard as a trap crop for diamondback moth; drip on beds.

K-070 **Mango: organic cultivation** — FRUIT ORCHARD · LOW WATER
Compost, bio-fertilisers and green leaf mulch; methyl eugenol traps for fruit fly; premium organic market.

The Next Forty Activities (continued)

K-071 **Mushroom cultivation** — ALLIED · LITTLE OR NO FIELD WATER
Oyster mushroom grown indoors on paddy straw; uses crop residue and very little water; suits women and landless families.

K-072 **Crop + dairy + farm pond + fish** — INTEGRATED · MEDIUM WATER
Pond stores water for crops and raises fish; dairy manure feeds the fields; a buffer in a dry year.

K-073 **Fig (anjeer)** — FRUIT ORCHARD · LOW WATER
Hardy fruit for dry regions; drip; sold fresh or dried.

K-074 **Polyhouse management** — PROTECTED CULTIVATION · MEDIUM WATER
High-value vegetables and flowers under cover with drip fertigation; more crop per litre of water.

K-075 **Biochar production** — SOIL HEALTH · LITTLE OR NO FIELD WATER
Cotton and redgram stalks charred in low-oxygen kilns instead of burning; improves soil carbon and water holding.

K-076 **NMNF (natural farming)** — NATURAL FARMING · LOW WATER
Jeevamrutham, beejamrutham, mulching and mixed cropping under the National Mission on Natural Farming.

K-077 **Azolla for feed** — LIVESTOCK · LOW WATER
Floating fern grown in shallow pits; protein-rich supplement for cattle and poultry.

K-078 **Hydroponic grass / fodder unit** — LIVESTOCK · LOW WATER
Sprouted maize fodder grown in trays in about a week, with far less water than field fodder.

K-079 **GPS-based farming model (AI)** — DIGITAL AGRICULTURE · LITTLE OR NO FIELD WATER
Field mapping, satellite or drone crop monitoring and app advisories for precise use of inputs.

K-080 **Custom hiring centre** — MECHANISATION · LITTLE OR NO FIELD WATER
Shared machines for small farmers on hire; supported under SMAM.

The Next Forty Activities (continued)

K-081 **Sheep rearing** — LIVESTOCK · LOW WATER
Hardy local breeds suited to dry lands; National Livestock Mission support; elevated sheds (K-025).

K-082 **Beekeeping** — ALLIED · LOW WATER
Bee boxes in sunflower, safflower and orchards: honey income and better pollination.

K-083 **Dragon fruit** — FRUIT ORCHARD · LOW WATER
Cactus fruit trained on concrete poles; needs little water; bears from the second year.

K-084 **Solar units: PM-KUSUM** — ENERGY · LITTLE OR NO FIELD WATER
Solar pumps for daytime irrigation with central and state support.

K-085 **Bio-input resource centre** — NATURAL FARMING · LITTLE OR NO FIELD WATER
Village unit preparing natural-farming inputs and botanical extracts for nearby farmers.

K-086 **Millets cultivation** — FIELD CROP · LOW WATER
Jowar, ragi, korra and other millets: low water need and growing demand as nutri-cereals.

K-087 **Quinoa seed cultivation** — NEW CROP · LOW WATER
High-protein pseudo-cereal grown in rabi; tolerant of dry conditions; market linkage to be built.

K-088 **Oil extraction unit (groundnut)** — VALUE ADDITION · LITTLE OR NO FIELD WATER
Village cold-press unit for groundnut oil; oilcake for cattle feed; eligible for AIF loans.

K-089 **Cocoa intercrop in oil palm** — PLANTATION · HIGH WATER
Shade-loving cocoa in the space under mature oil palm, with drip; a second income from the same land.

K-090 **Curry leaf** — VEGETABLE · LOW WATER
Perennial bush giving repeated harvests for years with low inputs.

The Next Forty Activities (continued)

K-091 **Aakakara (spine gourd)** — VEGETABLE · MEDIUM WATER
Perennial creeper grown from tubers on trellis; high market price.

K-092 **High-value vegetables (carrot, beetroot)** — VEGETABLE · MEDIUM WATER
Cool-season root crops on raised beds for town markets.

K-093 **Medicinal plants (aloe vera, neem)** — MEDICINAL · LOW WATER
Aloe vera thrives on dry land with very little water; buy-back arrangements are essential.

K-094 **Vattiveru (vetiver)** — AROMATIC · LOW WATER
Deep-rooted grass for bunds against soil erosion; roots for aromatic oil and handicrafts.

K-095 **Kunkudu kayalu (soapnut)** — TREE CROP · LOW WATER
Hardy dryland tree; the fruit is a natural detergent.

K-096 **Guava (6-month crop model)** — FRUIT ORCHARD · MEDIUM WATER
Pruning and crop regulation to harvest in the season of best prices; drip and close planting.

K-097 **Apple ber** — FRUIT ORCHARD · LOW WATER
Improved ber variety, very hardy, bears early; can be grafted on wild ber.

K-098 **Seethaphal (custard apple) farm** — FRUIT ORCHARD · LOW WATER
Dryland fruit native to Telangana; drip and pulp processing add value.

K-099 **Lily and rose cultivation** — FLOWERS · MEDIUM WATER
Loose and cut flowers for festivals and weddings; drip; staggered planting.

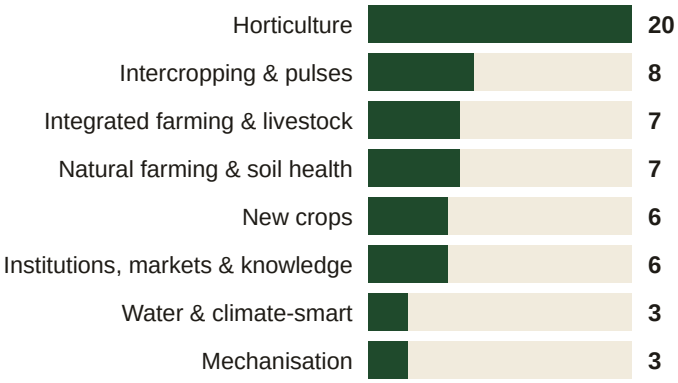
K-100 **Model Rythu Vedika** — EXTENSION · LITTLE OR NO FIELD WATER
A village knowledge hub: demonstrations, soil testing, weather advisories and farmer training.

What Sixty Farmers Show Us

38	8	7	5	2
Kosgi mandal	Gundumal mandal	Kothapally mandal	Maddur mandal	Division-wide (K-024 model, K-057 clusters, K-056)

Stories by mandal. Counts are of documented stories, not of farmers in the mandal.

STORIES BY INNOVATION THEME



Each story is counted once, under its main theme.

SIX LESSONS

Diversify, do not abandon
Most farmers kept their main crop and added a second income beside it.

Small plots, daily income
Ten to twenty guntas of vegetables or flowers gave several families a daily cash flow.

Water decides success
Drip, mulch, rain pipes, AWD, ponds and recharge appear again and again in the stories.

Timing is a technology
Planting for festival demand or the lean season of a crop raised prices.

Together is stronger
FPOs and group marketing gave small farmers bargaining power and services.

Seeing is believing
Farmers adopted what they saw working in a neighbour's field.

A note on impact figures. Income figures in the stories are farmer-reported for single farms and seasons; they have not been added up into a project total, because costs, areas and periods differ from farm to farm. A verified impact assessment is planned after the Yasangi season.

Recommendations for Scaling Up

Proposals of the Project K-100 team for taking the sixty models to thousands of farms.

1 **One demonstration in every village cluster**
Link each K-100 farmer to the nearest Rythu Vedika for regular field days, so that every farmer can see a working model within walking distance.

2 **Water first in the KADA area**
Saturate the area with farm ponds and borewell recharge pits through VB-G RAM G, and drip and sprinklers through TGMIP, in convergence with KADA.

3 **A Yasangi diversification drive for the El Niño year**
Seed kits of pulses and oilseeds, sprinkler sets and weekly advisories, so that part of the paddy area moves to low-water crops.

4 **Markets for small farmers**
Pilot the iFarmer farm-to-home model (K-024) in Kosgi and Kodangal towns, and strengthen FPOs with custom hiring centres and procurement (AIF, SMAM).

5 **Fodder and livestock security**
Silage units, azolla pits and hydroponic fodder units for dairy and sheep farmers ahead of summer 2027.

6 **Youth and next generation**
Farm visits for school students (K-060) and skilling of educated youth as drone pilots, CHC operators and agri-entrepreneurs.

7 **Measure and verify**
Record costs, yields and prices each season; verify with records; publish an updated edition with all 100 farmers.

8 **Mega Kisan Mela**
100 stalls, one per innovation, with live demonstrations, a buyer–seller meet and awards, as planned in the concept note.

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Sources and Acknowledgements

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The real champions are the farmers, who adopted these innovations and do the hard work in their fields every day.

ABBREVIATIONS AND TERMS

AEO · Agriculture Extension Officer

AIF · Agriculture Infrastructure Fund

AWD · Alternate wetting and drying (paddy irrigation)

CHC · Custom hiring centre for farm machinery

DSR · Direct-seeded rice

FPO · Farmer producer organisation

Gunta · 1/40 of an acre (about 101 m²)

ICAR · Indian Council of Agricultural Research

IMD · India Meteorological Department

KADA · Kodangal Area Development Authority

KVK · Krishi Vigyan Kendra

MAO · Mandal Agriculture Officer

MIDH · Mission for Integrated Development of Horticulture

MSP · Minimum support price

NLM · National Livestock Mission

NMEO · National Mission on Edible Oils

NMNF · National Mission on Natural Farming

PACS · Primary agricultural cooperative society

PJTSAU · Professor Jayashankar Telangana State Agricultural University

SMAM · Sub-Mission on Agricultural Mechanisation

TGMIP · Telangana Micro Irrigation Project

VB-G RAM G · Rural employment scheme that replaced MGNREGA



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గౌరవ ముఖ్యమంత్రివర్యులు, తెలంగాణ రాష్ట్రం

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*Showing the path to **Crop Diversification***

through farmer-led success stories



STOP MONO CROPPING... PROMOTE CROP DIVERSIFICATION

Department of Agriculture
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