

Local Resource based Sustainable Organic Farming Model

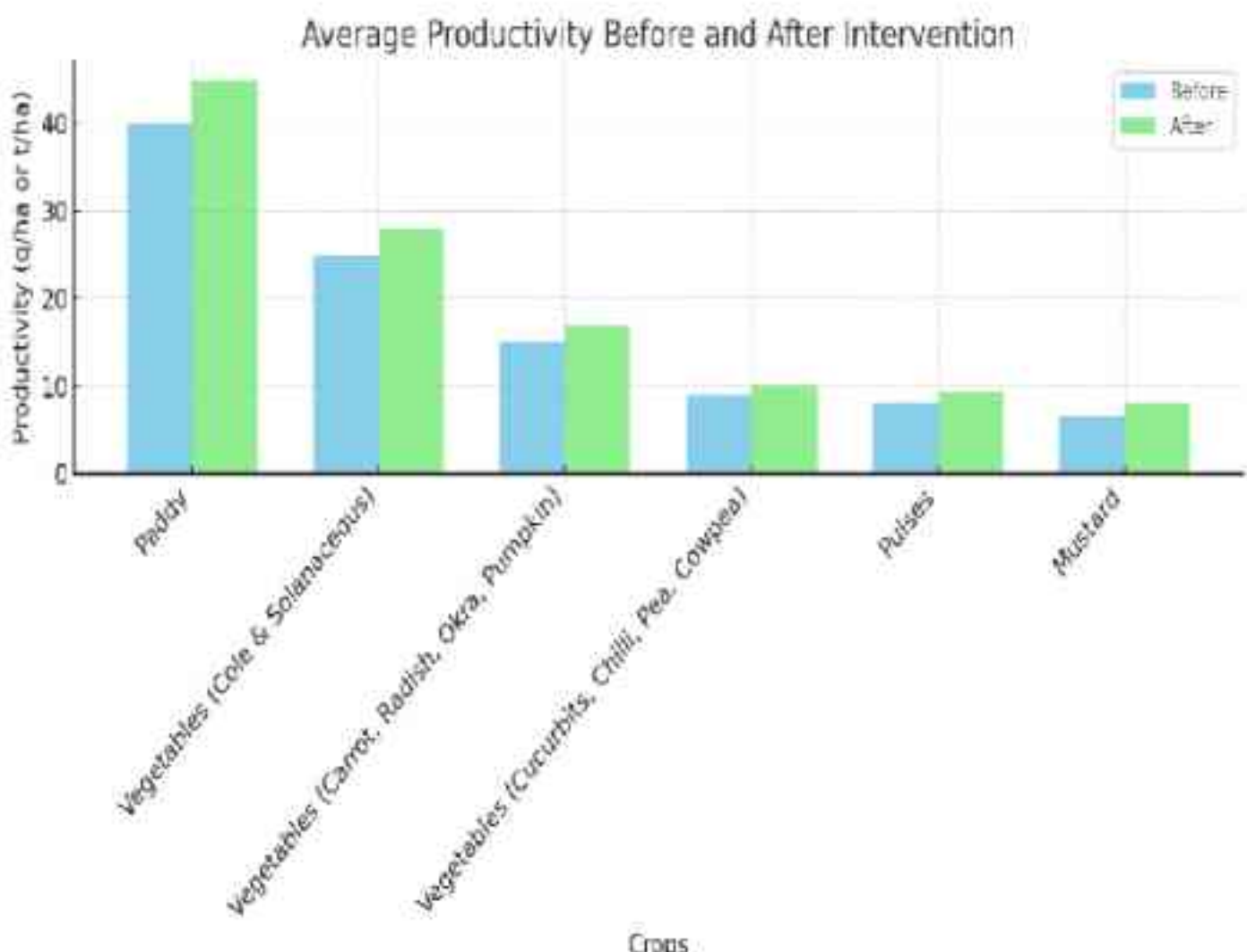
1. Summary of the technology	This technology is designed to address the agrarian challenges of small and marginal farmers in Jharkhand's Chota-Nagpur Plateau by enabling a low-cost, self-sustaining organic farming system. It leverages locally available natural resources, especially cow dung, cow urine, and biomass, minimizing dependency on commercial inputs. The approach enhances soil health, crop yield, and farmer profitability over time, while promoting agro-ecological sustainability. Conceptual framework Most of the farmers of Ranchi district are resource poor small and marginal farmers who are unable to make up with increasing cost of different critical inputs of traditional agriculture system. Further, topography of available cultivable land area (divided into up and low land) also limits the options of crops for a particular season. It affects the crop productivity also. Low fertilizer use has been a characteristic feature of agriculture system in Jharkhand state which makes farming situation very suitable for adoption of chemical free farming techniques like organic farming. However, it was observed that in prevalent organic farming system application of different bio-fertilizers and other commercial organic products, is promoted which is not affordable for resource poor small and marginal farmers of Ranchi. Since the farmer is not compelled to buy any required input from market and able to produce different manures and pesticides themselves, the technology was developed as "Low-Cost Local Resource based Organic Farming" based on the available local resources of that area. Components of this technology • Indigenous cow • Cemented cow floor (for collection of cow dung and urine) • Liquid organic manures (<i>Shashyagavya, Sanjivani, Jeevamrit, Beejamrit, Panchgavya</i> etc.) • Organic pesticides (<i>Dashparni, Neemastra, Agneyastra</i> etc.) • Green manuring with plants like <i>tephrosia</i> and <i>gliricidia</i> Implementation process Two conditions have been identified as the basic requirement for the beneficiaries: • All beneficiary house hold must have one or two cattle. So that required cow dung and cow urine is readily available.
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	• Second is the availability of enough biomass on farmers field or in the nearby forest areas which is required for preparation of different organic manures and pesticides. • Under this technology a cow floor of 150 sq. ft was constructed in every beneficiary's house along with construction of NADEP composting units • 10 plastic drums (720 litre) were provided to each beneficiary for preparation of organic liquid manure and bio-pesticide which is sufficient for cultivation of crops in about in the 10-acre area. • Furthermore, green manuring with plants like <i>tephrosia</i> and <i>gliricidia</i> was also promoted due to higher nutrient content. In each organic cluster 02 beneficiaries were identified and supported to become the input providers to produce and supply the liquid manures and bio-pesticides to other beneficiary of cluster or the target village at very nominal price. • After successful trial and demonstration of this technology at KVK Farm, it was implemented in field condition in Dhurleta village of Angara block of Ranchi district in 50-acre area in cluster mode with 29 farmers. And later on, expanded to Gundalitoli, Simratoli, Piprabera, Budhakoch, Dublabera, Nagrabera, Chhotkigorang, Kuchhu, Ober, Rangamati, Nawagarh, Barkigorang & Soso with the financial support of KVK TSP & other project fund. • All the efforts of different stakeholders of this project resulted in the declaration of Dhurleta village as the first Organic village of Jharkhand state.
2. Is it a new technology? (Yes/No) If no, provide the details of the technology modified	This technology has been modified by KVK, Ranchi to suit the socio-economic situation of the Dhurleta village of Angara block of Ranchi district. A cow floor (150 m²) has been designed by KVK to accommodate 3-4 desi cows to ensure efficient collection of cow dung and urine to support the preparation of different bio-pesticides (using locally available biomass of different forest plants), which may support organic farming in about 5 acres. In general, organic farming technique involves preparation and application of vermi-compost and use of different bio-fertilizers and other organic inputs from outside source. In present technology, NADEP composting was promoted with the help of already present forest biomass. In the present technology farmer produces all the required inputs himself on his field which reduce the production cost up to 15 per cent, ultimately increasing the profit margin.
3. IPR involved, if any (Patent/Copyright/ Industrial	No IPR involved

Design Registration/ Variety/ germplasm registration). Provide Filed/Granted number	
4. Validation procedure followed (within Institute, collaborators, multilocation/multi-site testing)	- Validated over 5 years at Divyayan KVK, Ranchi. - Field-tested under NABARD project in Dhurleta village. 13 clusters (750 acres, 510 farmers) have now adopted this model. - Soil sample report also tested for ICAR-Research Institute for verifying the nutrient content of the soil after the intervention - Dhurleta recognized as Jharkhand's First Organic Village. - The formulations of liquid organic manures like <i>Dashparni</i>, <i>Shashyagavya</i>, <i>Sanjivani</i> etc. were standardized and cow floor with cow urine collection pit was designed by Divyayan KVK, Ranchi in collaboration with RKMVERI, Ranchi. - The efficacy of these products was first tested in KVK farm continuously for 05 years. After proper validation of the results supported with soil nutrient status report it was decided to implement this technology at field level in Dhurleta village in a cluster of 50 acres under a NABARD sponsored project during 2017 to 2020. - During this period effort like on campus and off campus trainings, demonstrations at KVK farm, awareness camps, exposure visit were conducted to make all the farmers of the Dhurleta village aware about "Low-cost local resource based organic farming" technology. - In the year 2020, application for PGS certification of organic cluster was submitted and in the same year Dhurleta was declared as the first organic village of the Jharkhand state (Annexure II). Till date, this technology has been tested with multi-locational trial in 13 clusters (Each cluster has a minimum of 50 acres at each location).
5. Brief description of research output/technology	
a. Objective of the product/technology	- To promote chemical-free, local-input-based agriculture. - To establish organic clusters in tribal and marginalized areas. - To increase profitability and reduce production costs. - To improve soil health and water retention. - To enable market access and value-chain integration for

	organic produce
b. Detailed methodology of the proposed product/ technology	PROBLEM ASSESSMENT ➤ Firstly KVK has prioritized the problems by using first matrix method and identified suitable technologies and necessary skills needed by the farmers. Depending on the information gathered through PRA surveys Local resource based organic farming was identified thrust area for Dhurleta village. AWARENESS CREATION ➤ Awareness programme, group meetings, field visits, exposure visit etc. were used for educating about this technology and motivating them for its adoption. ➤ Five days on campus training programme was organized at KVK for all beneficiaries of the target village. ➤ Training manual, leaflet and other related literature were also developed for dissemination among farmers. ➤ Season based nine (09) intensive off campus training programmes on organic cultivation practices of different crops have been conducted at village level. INFRASTRUCTURAL SUPPORT ➤ Developed Agro-forestry model around the field of each farmer in the village for boosting production of foliage to be used as biomass resource in organic farming including the plants like <i>tephrosia</i> and <i>gliricidia</i>. ➤ Constructed Cow floor of 150m² in every beneficiary's house for efficient collection of urine, dung and waste fodder to be used as main ingredient for preparation of manure. ➤ Permanent structures for NADEP and compost pits have been constructed for all beneficiaries to ensure the efficient use of locally available biodegradable materials ➤ Provided plastic drums/ cans for preparation of organic liquid manure and bio-pesticide. ➤ Farmers were trained for preparation of different types of liquid manure like <i>beej sanjeevani</i>, <i>sasyagavya</i>, <i>panchgavya</i>, <i>Jeevamrit</i>, <i>Beejamrit</i> and bio pesticide like <i>Dashparni</i>, <i>Neemastra</i>, <i>Agnyeastra</i>, <i>Brahmastra</i> etc ➤ Developed two entrepreneurs in the village for organic input (liquid organic manure, bio-pesticide etc.) production in large

	scale. These entrepreneurs have 6 compost unit, two NADEP unit and one 1000 lit. capacity of tank. ➤ Record keeping by ddistribution of register to each beneficiary for keeping record of cost of cultivation of each crop and also for crop planning prior to the cultivation. MARKET LINKAGE Certification is a proof of identification of organically grown produce. So, for sustainable organic production and its marketing KVK proceeded in organic certification of organic producers. In 2018, 91 farmers of operational area got their certificates as organic grower by National Centre of Organic Farming- PGS India Organic (copy of one certificate attached). Finally Dhurleta village has been declared as first organic village in state on the occasion of International soil day i.e. on 5th December, 2018 in presence of local MLA, MP, DDC and CEO, Organic Farming Authority of Jharkhand (Paper clippings attached). Divyayan KVK, Ranchi established successful linkages between farmers and private players like Nature Cart (a Ranchi based start up selling organic farm produce) which were giving farmers 10 - 20 % higher price than local mandi. Presently, farmers are selling their produce in local mandis, market of Ranchi city and through organic sell counter of OFAJ, Jharkhand. All beneficiaries started managing their organic farms scientifically which decreased the input cost and increased the total agricultural profitability. This intervention raised self-confidence of some progressive farmers and they started increasing the cropping areas by taking loans from Kisan Credit Card (KCC).
c. Yield/productivity gain	The fertilizer consumption in target village is comparatively low. Hence, when different organic manures and pesticides along with bulky manures were used in farmers' field which shows increased benefit margin for first year. However, in initial two years non consistent result was recorded in terms of yield. It most of the plots the yield of lower than they used to achieve prior to adoption of organic farming. It was compensated to some extent by reduced input cost. it, no significant difference was observed in terms of yield in initial two years. However, for third year significantly higher yield was recorded in different crops under "low-cost local resource based organic farming". As per estimates of the year 2024, 12 per cent (Cole and solanaceous crops except chilli) to 21.1 per cent (Mustard) higher yield was achieved in organic farming based on present technology.

	Significant improvement in soil health of KVK campus is clearly evident as per the soil testing report issued by Division of Soil Science & Agricultural Chemistry, ICAR-IARI, New Delhi, which states that the present organic carbon status is 2.05%. Yield of paddy var. CR Dhan 320 recorded in KVK farm in 2024, 72 q/ha is also the proof of this improvement (soil testing report and crop cutting photos are enclosed). Average Productivity Before and After Intervention <table><thead><tr><th>Crops</th><th>Before</th><th>After</th></tr></thead><tbody><tr><td>Paddy</td><td>40</td><td>45</td></tr><tr><td>Vegetables (Cole & Solanaceus)</td><td>25</td><td>28</td></tr><tr><td>Vegetables (Carrot, Radish, Okra, Pumpkin)</td><td>15</td><td>17</td></tr><tr><td>Vegetables (Cucurbits, Chilli, Pea, Cowpea)</td><td>10</td><td>11</td></tr><tr><td>Pulses</td><td>8</td><td>9</td></tr><tr><td>Mustard</td><td>6</td><td>7</td></tr></tbody></table>	Crops	Before	After	Paddy	40	45	Vegetables (Cole & Solanaceus)	25	28	Vegetables (Carrot, Radish, Okra, Pumpkin)	15	17	Vegetables (Cucurbits, Chilli, Pea, Cowpea)	10	11	Pulses	8	9	Mustard	6	7
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d. Saving of water, labour, time and energy	It reduced production cost up to about 14 per cent through saving and efficient utilization of different agricultural resources. The present technology is unique in terms of the inputs requirement which are low cost and locally available (biomass, cow dung and cow urine). Increase in water holding capacity of soil but also saved the number of irrigation and energy in particular cluster.																					
e. Conservation of soil	The present technology is organic input based (cow dung, cow urine and other locally available biomass). Due to improvement of organic matter of soil and bio-mulching prevented soil erosion and reduced the number of irrigations. Improved Soil Health: Soil organic carbon increased to 2.05%. The nutrient content of the soil along with available N, P & K is also enhanced as per the ICAR-IARI, New Delhi soil testing Reports.																					
f. Capacity	So far, this technology has been adopted in 13 villages and about 5000 individuals have adopted and are practicing this technology for crop production. Ranchi district possess very favourable condition for dissemination of this technology which has great potential not only to fetch good return for farmers but to improve the soil and environmental health also. Further, it has shown good potential for the whole state of Jharkhand because of low fertilizer consumption in many regions.																					

g. Efficiency	Increase in cropping intensity by 29.41 per cent. Resulted into significant change in cropping pattern in the field of all beneficiary farmers. In comparison to cereal and pulses market price of organic vegetable is higher. Comparison of Cropping Parameters (Before vs After) <table><tr><th>Parameters</th><th>Organic Farming</th><th>Conventional Farming</th></tr><tr><td>Gross Cropped Area</td><td>110</td><td>70</td></tr><tr><td>Net Cropped Area</td><td>50</td><td>40</td></tr><tr><td>Cropping Intensity (%)</td><td>220</td><td>170</td></tr></table> So, farmers have significantly increased area under vegetable keeping the scope of higher return from vegetables in mind. Effect of Organic vs Conventional Farming on Total Area Across Seasons <table><tr><th>Cropping Season</th><th>Organic Farming</th><th>Conventional Farming</th></tr><tr><td>Kharif</td><td>50</td><td>40</td></tr><tr><td>Rabi</td><td>30</td><td>13</td></tr><tr><td>Zaid</td><td>30</td><td>15</td></tr></table>	Parameters	Organic Farming	Conventional Farming	Gross Cropped Area	110	70	Net Cropped Area	50	40	Cropping Intensity (%)	220	170	Cropping Season	Organic Farming	Conventional Farming	Kharif	50	40	Rabi	30	13	Zaid	30	15
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h. Cost effectiveness including B:C ratio	Approximately 14 per cent cost reduction was estimated in organic farming in different crops of different season. Application of all local resource based organic inputs has been found very cost effective in comparison to tradition farming system.																								

	B:C Ratio Before and After Intervention by Crop <table border="1"><thead><tr><th>Crops</th><th>Before intervention</th><th>After intervention</th></tr></thead><tbody><tr><td>Paddy</td><td>0.5</td><td>1.2</td></tr><tr><td>Onion & Solanaceous vegetables (OPV)</td><td>1.5</td><td>2.9</td></tr><tr><td>Carrot, radish, okra & pumpkin</td><td>1.5</td><td>3.4</td></tr><tr><td>Cucurbits, millett, peas & cowpea</td><td>0.9</td><td>1.7</td></tr><tr><td>Pulses (Black gram & Red gram)</td><td>0.5</td><td>0.8</td></tr><tr><td>Mustard</td><td>0.2</td><td>0.4</td></tr></tbody></table>	Crops	Before intervention	After intervention	Paddy	0.5	1.2	Onion & Solanaceous vegetables (OPV)	1.5	2.9	Carrot, radish, okra & pumpkin	1.5	3.4	Cucurbits, millett, peas & cowpea	0.9	1.7	Pulses (Black gram & Red gram)	0.5	0.8	Mustard	0.2	0.4
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i. Uniqueness of the technology in comparison to existing one	• Self-reliant system based on scientific empowered with indigenous wisdom and locally available materials • Low cost: all inputs are available locally without any investment • Eco-friendly technology: All inputs are a natural and organic beneficial to environment and human and aligned with national organic farming goals. • High market value of procures • Empowers farmers as both producers and service providers (inputs). • Highly scalable with good adoption rate due to low input cost and high adaptability.																					
j. Passport data of the product/technology	Refer Annexure III																					
6. Details of relevant data generated during the development/validation	Refer Annexure IV																					
7.. Proposed stakeholders	• Potential KVKs and SAUs • Small and marginal farmers • Funding agency • Certification & marketing agencies • State Agriculture Department • Farmer Producer Organizations (FPOs) • Private market players like small agribusiness start-up																					
8. Commercial potential, if any	• High commercial potential due to growing demand for safe and organic produce. • Entrepreneurial models established around input supply and produce aggregation. • Scope for value-added services and product development (organic pest control, compost).																					

	Can be integrated into carbon credit programs through organic soil management.
9. Publications/photos/video clipping, if any	Refer Annexure V Research paper: 02 - Singh N., Rajan N., Singh A. K., Kumar A., Pandey B. and Singh R. K. (2019). Belief towards organic farming among farmers of Ranchi district. Indian Journal of Extension Education, 55 (3): 97-100. - Pandey, B., Singh, A.K., Singh, N., Rajan, N., Kumar, A., Singh, R.K., Keshava (2022). Organic farming: assessment of the perception of practicing tribal farmers in Jharkhand. Indian Journal of Agricultural Sciences, 92(6): 711-5. Popular articles: 02 - Singh A. K., Pandey B., Rajan N., Kumar A., Singh, N. (2019). Organic Farming, an initiative for tribal farmers. Indian Farming 69 (05): 9-12. - Singh, A. K., Singh, R. K., Kumar, A., Kumar A., Bhadauria, P. (2024). Sthaniya sansadhan adharit jaivik kheti se badhayen amadani (Hindi). Kheti 2024: 10-14. Technical Bulletin: Low-Cost Organic Farming by Divyayan KVK, Ranchi Training Manual: Jalvayu Anurup Jaivik Krishi Takniki" published by Divyayan KVK, Ranchi Reports and success stories: 02 Newspaper coverage: >05 Video > 05 Award & Recognition: 02
10. Any other information not covered above	The first On Field Trial of the technology was conducted in KVK Farm (located in administrative campus of KVK in Morabadi, Ranchi). Presently, this technology has been adopted in total area of this farm. The yield of all the crops grown has been at par to the yield achieved in traditional chemical inputs-based farming. Recently, it was witnessed and estimated by the KVK officials during the Crop cutting program of CR Dhan 320 grown at KVK, Ranchi Campus farm, Morabadi conducted on 12.11.2024 in the presence of the Breeder of the variety, Dr. N. P. Mandal, Head, ICAR-NRRI, Hazaribagh, Dr. S. Karmakar, Director Seed & Farm, BAU, Ranchi, Shri Vikas Kumar, Director, SAMETI, Jharkhand and Journalists of Different Media Channels (Annexure V). The positive impact of this technology on soil health is also evident

	by the soil testing report of soil samples of this farm issued by Division of Soil Science & Agricultural Chemistry, ICAR-IARI, New Delhi which clearly indicates the 2.05 and 2.03 per cent Organic Carbon (Annexure VI).
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ANNEXURE I

Technologies different organic formulations standardized

	Index 1. Background and Introduction - 1 2. Brief Description and Preparation of four multi-purpose and multi-functional liquid organic products under study - 6 3. Effect of four multi-purpose and multi-functional liquid organic products on yield of different crops - 14 4. Bio-chemical analysis of the liquid organic products and improved farm soil - 16 5. Increasing shelf life of liquid organic products and scope for rural employment - 19 6. Effects on composting - 20 7. Effects on root development - 22 8. Low cost package of technologies for sustainable/ organic farming - 22 9. Economics of cultivation - 25 10. Multi-locational trials and demonstrations - 27 11. Food quality improvement - 33 12. Achievements of the project - 34 13. Suggestive Technology (upgraded and standardized under RuTAG - EI) Transfer Strategy - 35 14. Conclusion - 36 15. Scope for future research - 38
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Study report on Sustainable Agriculture with Low-Cost Technologies published by Ramakrishna Mission Vivekananda University (presently known as Ramakrishna Mission Vivekananda Educational and Research Institute - RKMVERI, Ranchi)

ANNEXURE II

Certificate of local group registration issued by PGS-India

	PGS-India An Organic Guarantee Programme Organic Way of Life Date : 16/11/2018
Certificate of Local Group Registration	
On completion of registration requirement and after thorough scrutiny VIVEKANAND SAWAIM SAHAYATA SAMUH is hereby admitted to PGS-India program as per the details given below:	
Name of Endorsing agency Endorsement By: REGIONAL COUNCIL RC Name : Organic Way of Life RC Reg No : PGSI/NC(DE)-3057	
Registration No. granted : LG2400024239	
Date of Registration : 9/21/2018	
Number of Farmers : 14	
Area 17.26 Hectare	
Name of the Group leader : KAMLESHWAR BEDHA	
Address and Contact Nos State : JHARKHAND District: RANCHI block : ANGARA Village : JONHA Email Id : mahatomamaji@gmail.com Mobile Number : 7258047080	
Continuation of registration is subject to regular submission of season-wise (or half yearly) LG summary sheets and grant of certification status by attached Regional Council. This certificate is valid till the grant of first scope certificate or TWELVE month from the date of issue of this certificate, whichever is earlier.	
Signature of RC I/C Name ----- Designation	

PGS India certificate issued to organic grower of Dhurleta (Johna cluster)

ANNEXURE III

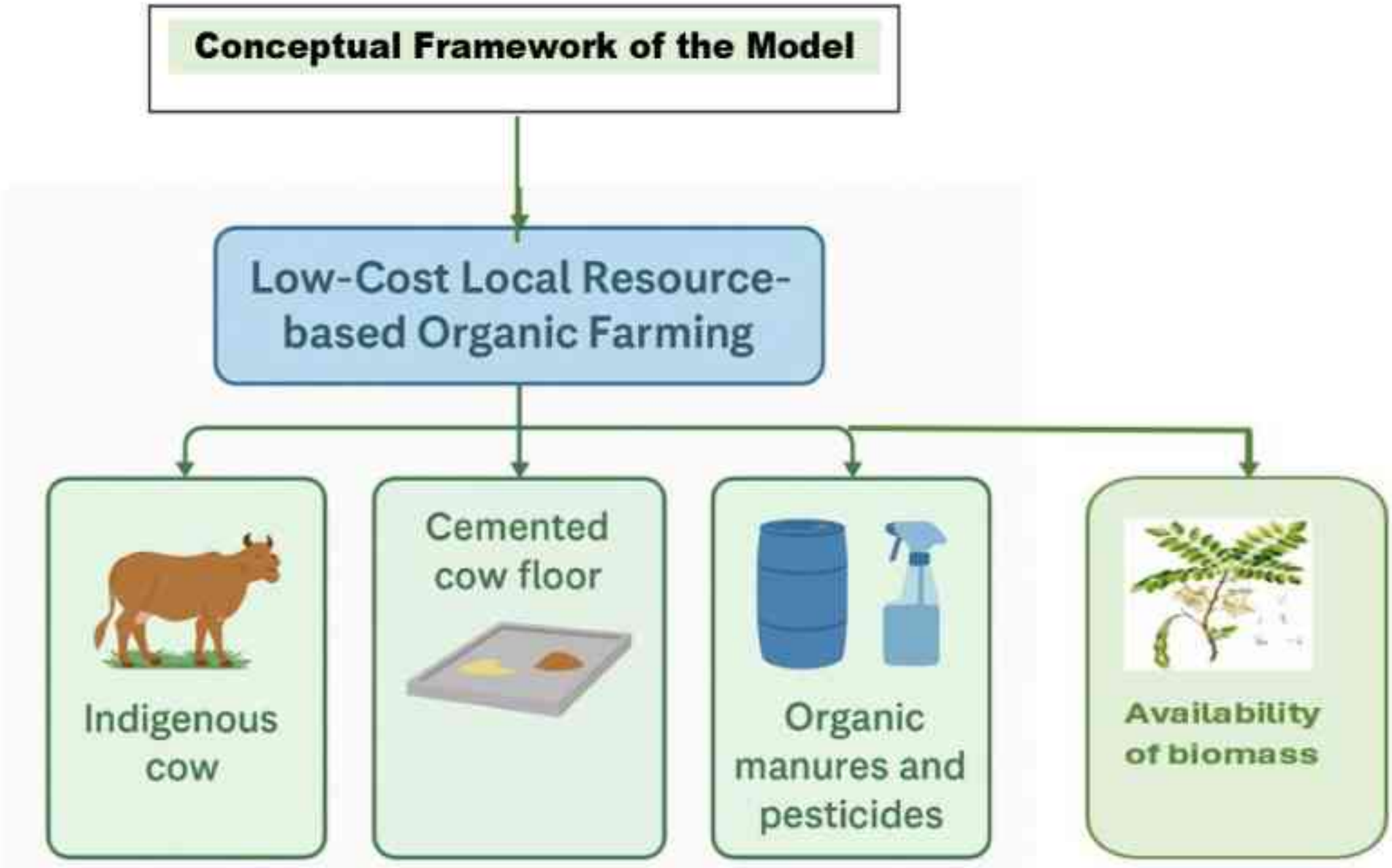


Table 1: Preparation and application of liquid organic manure

S. no.	Product	Composition		Fermentati on period (days)	Application
		Content	Quantity		
1.	Beej Sanjivani (20%) Dose - 2-3 lit./kg seed	Cow dung Cow urine Water	1 part 1 part 5 part	7-9	• For seed treatment 2-3 lit./kg seed • For seedling treatment - dip seedlings in the solution
2.	Paudh Sanjeevani (5%) for spray on less than a month-old plant	Cow dung Cow urine Water	1 part 1 part 20 part	7-9	• For spray on standing crop of less than a month • To be applied twice in a month till crop maturity • May be applied through irrigation water also
3.	Paudh Sanjeevani (10%) for spray on plants older than a month	Cow dung Cow urine Water	1 part 1 part 10 part	7-9	• Start spraying on standing crop after one month of planting • To be applied twice in

					a month till crop maturity • May be applied through irrigation water also
4.	Shashyagavya (5 %)	Cow dung Cow urine Crop residue Water	1 part 1 part 1 part 20 part	10-12	• For spray on standing crop of less than a month • To be applied twice in a month till crop maturity • May be applied through irrigation water also
5.	Shashyagavya (10%)	Cow dung Cow urine Crop residue Water	1 part 1 part 1 part 10 part	10-12	• For spray on standing crop of less than a month • To be applied twice in a month till crop maturity May be applied through irrigation water also
6.	Panchgavya Dose - 3 kg/100 lit. water	Cow dung Cow urine Milk Curd Ghee	5 part 3 part 2 part 2 part 1 part	7-9	• Spray in standing crop once in a month • 3 kg/100 lit. of water

ANNEXURE IV

Table 1: Effect of "Low-cost local resource based organic farming technique" on average productivity of different crops

S. No.	Crops	Av. productivity (Before intervention)	Av. productivity (After intervention)	% Increase in yield
1.	Paddy (Improved var. Abhishek, Lalat, Sahbhagi, MTU 1010, IR 64 (drt)	40 q/ha	45 q/ha	12.5
2.	Vegetables (OPV)			
	Cole crops and solanaceous crop except chilli	25 t/ha	28t/ha	12
	Carrot, radish, okra and pumpkin	15 t/ha	17 t/ha	14.3
	cucurbits, chilli, pea and cowpea	9 t/ha	10 t/ha	12.5
3.	Pulses (Black gram, Gram, Lentil, Pigeon pea)	8 q/ha	9.5 q/ha	18.75
4.	Mustard	6.6 q/ha	8 q/ha	21.1
	Average increase in yield (%)			15.9

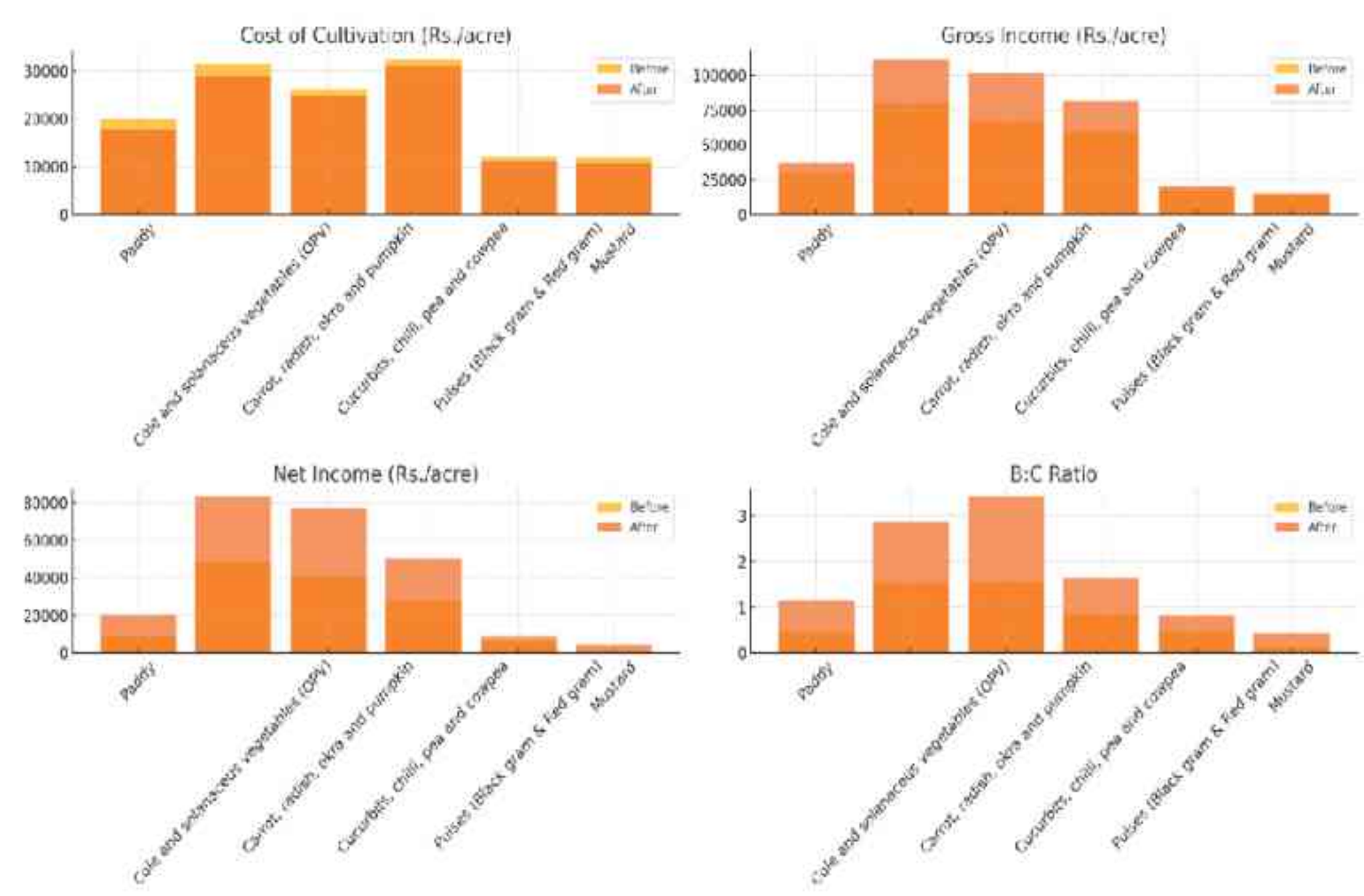
Table 2: Effect of "Low-cost local resource based organic farming technique" on Cropping pattern and cropping intensity as per total area of beneficiaries

S. no.	Cropping Season	Crop	Total area (acre) of beneficiaries	
			Organic farming	Conventional farming
1	Kharif	Paddy	30	30
		Vegetables	15	5
		Pulses	5	5
		Total	50	40
2	Rabi	Vegetables	15	10
		Pulses	5	-
		Oilseed	5	3
		Banana	5	-
		Total	30	13
3	Zaid	Vegetable	15	-
		Paddy	15	15
		Total	30	15
	Gross cropped area		110	68
	Net cropped area		50	40
	Cropping intensity (%)		220	170
	% Increase in cropping intensity		29.41	

Table 3: Effect of "Low-cost local resource based organic farming technique" on economics of crop production

S. No.	Crops	Cost of cultivation Rs./acre		Gross Income Rs./acre		Net Income Rs./acre		B:C Ratio	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
1.	Paddy	20,044	17,721	29,400	37,400	9,356	20179	0.47	1.14
2.	Cole and solanaceous vegetables (OPV)	31540	28945	80,000	1,12,000	48,460	83,055	1.52	2.87
3.	Carrot, radish, okra and pumpkin	26,160	24,660	67,200	1,02,000	41,040	77,340	1.57	3.41
4.	Cucurbits, chilli, pea and cowpea	32,537	31,005	60,000	81,600	27,463	50,595	0.84	1.63
5.	Pulses (Black gram & Red gram)	12,105	11,100	17,920	20,160	5,815	9,060	0.48	0.82
6.	Mustard	11,996	10,540	13,440	15,120	1,444	4,580	0.12	0.43
	Total	1,34,382	1,23,971	2,67,960	3,68,280	1,33,578	2,44,809		

Comparison Before and After Intervention for Different Crops



Annexure V

Crop cutting program of rice grown under organic/natural farming in KVK Farm





आइसीएआर की हजारीबाग स्थित संस्था के डॉ मंडल ने विकसित किया बीज रामकृष्ण मिशन आश्रम ने प्राकृतिक खेती से एक हेक्टेयर में 72 क्विंटल धान उपजाया

□ सामान्यतः एक हेक्टेयर में होता है 32 क्विंटल धान
लाइफ रिपोर्टर @ रांची

बिना किसी प्रकार के रासायनिक खाद के प्रयोग से भी सामान्य से दोगुना धान की उपज ली जा सकती है. यह परिणाम रांची कृषि विज्ञान केंद्र में की गयी प्रायोगिक खेती में मिला है. केंद्र ने रामकृष्ण मिशन के दिव्यायन सेंटर पर हजारीबाग स्थित भारतीय कृषि अनुसंधान परिषद केंद्र (आइसीएआर) के डॉ एमएन मंडल द्वारा विकसित धान की सीआर-370 वेराइटी का प्रयोग किया था.

एक जुलाई को इसका बिचड़ा तैयार किया गया था. 11 नवंबर को इसका कटाई की गयी. वेराइटी करीब 117 से 120 दिनों में तैयार हो जाती है. कटाई में एक हेक्टेयर में करीब



रामकृष्ण मिशन के दिव्यायन सेंटर में धान का जायजा लेते अधिकारी.

72 क्विंटल धान की उपज हुई है. झारखंड में सामान्य तौर पर 30 से 32 क्विंटल प्रति हेक्टेयर ही धान का उपज होता है. इसकी कटाई के लिए केवीके ने एक कमेटी बनायी थी. कमेटी के सामने हुई कटाई में यह परिणाम मिला है.

किसान के खेत में भी 50 से 55 क्विंटल होगी धान की उपज : डॉ मंडल ने बताया कि चूंकि यह प्रायोगिक फील्ड था, इस कारण यहां खेती के सभी पैमाने का खयाल रखा गया है. किसानों द्वारा लगाये गये खेतों में इसमें कुछ कमी रह जाती

है. इसके बावजूद किसानों खेत में इसकी उपज 50 से 55 क्विंटल तक जरूर होगी. इसमें बीमारी भी कम लगता है. झारखंड के मौसम के अनुकूल तैयार किया गया है.

केवीके रांची के वरीय वैज्ञानिक डॉ अजीत कुमार सिंह ने बताया कि पिछले साल अनगड़ा में किसानों के खेत में लगाया गया था. इस बार 15 क्विंटल धान का बीज किसान खरीद कर ले गये हैं. इसी बीज का प्रयोग अनगड़ा के छोटकी गोड़ान गांव में 200 एकड़ में हो रहा है. इस मौके पर समिति के निदेशक विकास कुमार, रामकृष्ण मिशन कृषि महाविद्यालय के एसोसिएट डीन डॉ राघव ठाकुर, मिशन के सचिव स्वामी भवेशानंद, वरीय वैज्ञानिक डॉ मनोज कुमार सिंह और प्रदीप कुमार सरकार भी मौजूद थे.

Crop cutting program of CR Dhan 320 at KVK, Ranchi Campus farm at Morabadi, Ranchi conducted on 12.11.2024 in the presence of the Breeder of the variety, Dr. N.P. Mandal, Head, ICAR-NRRI, Hazaribagh, Dr. S. Karmakar, Director Seed & Farm, BAU, Ranchi, Shri Vikas Kumar, Director, SAMETI, Jharkhand and Journalists of Different Media Channels.

Annexure VI

Soil testing report of soil sample of Divyayan KVK, Morabadi Farm, Ranchi

केन्द्रीय मृदा एवं पादप परीक्षण प्रयोगशाला
CENTRAL LABORATORY FOR SOIL AND PLANT ANALYSIS
मृदा विज्ञान एवं कृषि रसायन विज्ञान संभाग

Division of Soil Science and Agricultural Chemistry
आकृष्य-भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली-110012

ICAR-INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI -110 012

(Phone: 011-25841494, Email: soilhealth@icar.org)

मृदा परीक्षण रिपोर्ट / SOIL TEST REPORT

(Receipt No. 318602, Dated 23-04-2025, Rs.7400/-)

नाम / Name & Address: Sh. Divyayan, Kisa Vigyan Kendra, Ranchi Morabadi, Ranchi, Jharkhand.

क्र.सं. S.No.	नमूना चिह्न Sample mark	प्रयोगशाला संख्या Lab. No.	अम्लिकता pH (1:2)	विद्युत चालकता EC (1:2) (dS/m)	वैश्विक कार्बन Organic C (%)	उपलब्ध पोषक तत्व Available Nutrients				उपलब्ध सूक्ष्म पोषक तत्व Available Micronutrients			
						नाइट्रोजन N	फॉस्फोरस P	पोटाश K	सल्फर S	बोरॉन B	जस्ता Zn	तांबा Cu	लोहा Fe
						(kg/ha)				(mg/kg)			
1.	Soil-1	C-58/25	7.24	0.28	2.05 H	418 M	218 H	879 H	13.9 S	0.83 S	22.7 S	9.60 S	405 S
2.	Soil-2	C-59/25	7.17	0.71	2.03 H	397 M	122 H	286 H	21.6 S	0.91 S	14.7 S	8.00 S	333 S

L=Low, M=Medium, H=High, S=Sufficient

निष्कर्ष : 1. दोनों मृदाओं का कार्बन उच्च वैश्विक कार्बन तथा फॉस्फोरस एवं पोटाश का उच्च स्तर है एवं नाइट्रोजन का उच्च स्तर है। दोनों मृदाओं में उपलब्ध सल्फर व बोरॉन उचित स्तर पर है, वैश्विक पर्याप्त है। जल्दी सुपुष्पा वाले पौधों के साथ फसलों की संतुलित पादक का उपयोग करें। 2. जल-बुझ, नाइट्रोजन-कार्बन के उच्च स्तरों की वजह से इसे में अधिक मात्रा में सिंचन एवं उचित मात्रा में खाद/कृत्रिम खाद/पुनः विज्ञान करना, भारतीय कृषि अनुसंधान संस्थान (पुनः) की दिल्ली में संशोधन वैज्ञानिकों से संपर्क करें।

Recommendations: 1. Both soils are normal with high in organic carbon, available P and available K, medium available N content. Both soils are sufficient in available S, above micronutrients are sufficient in soils, as indicated above. Use balanced fertilizers along with good quality manures. 2. For fruit crops, vegetable and flower crops, the concerned specialists may be consulted for specific recommendations at Division of Fruits and Horticulture Technology/ Vegetables Crops / Floriculture, IARI, New Delhi.

नोट : यह रिपोर्ट केवल सूचना के लिए प्रकाशित है और इसे किसी भी प्रकार का प्रमाण नहीं माना जाना चाहिए।

Note : This report can not be used as a certificate for legal purpose

प्रमुख वैज्ञानिक / Scientist Incharge

डॉ. महेश चंद मीना
Dr. MAHESH C. MEENA
प्रधान वैज्ञानिक / Principal Scientist
मृदा विज्ञान एवं कृषि रसायन विज्ञान संभाग
Div. of Soil Science & Ag. Chemistry
आकृष्य-भारतीय कृषि अनुसंधान संस्थान
ICAR-IARI, New Delhi-12

Organic Carbon Content (2.05 & 2.03 per cent) of Soil Sample of KVK Ranchi Farm estimated and reported by Division of Soil Science & Agricultural Chemistry, ICAR-IARI, New Delhi

ii. Popular Articles (2)

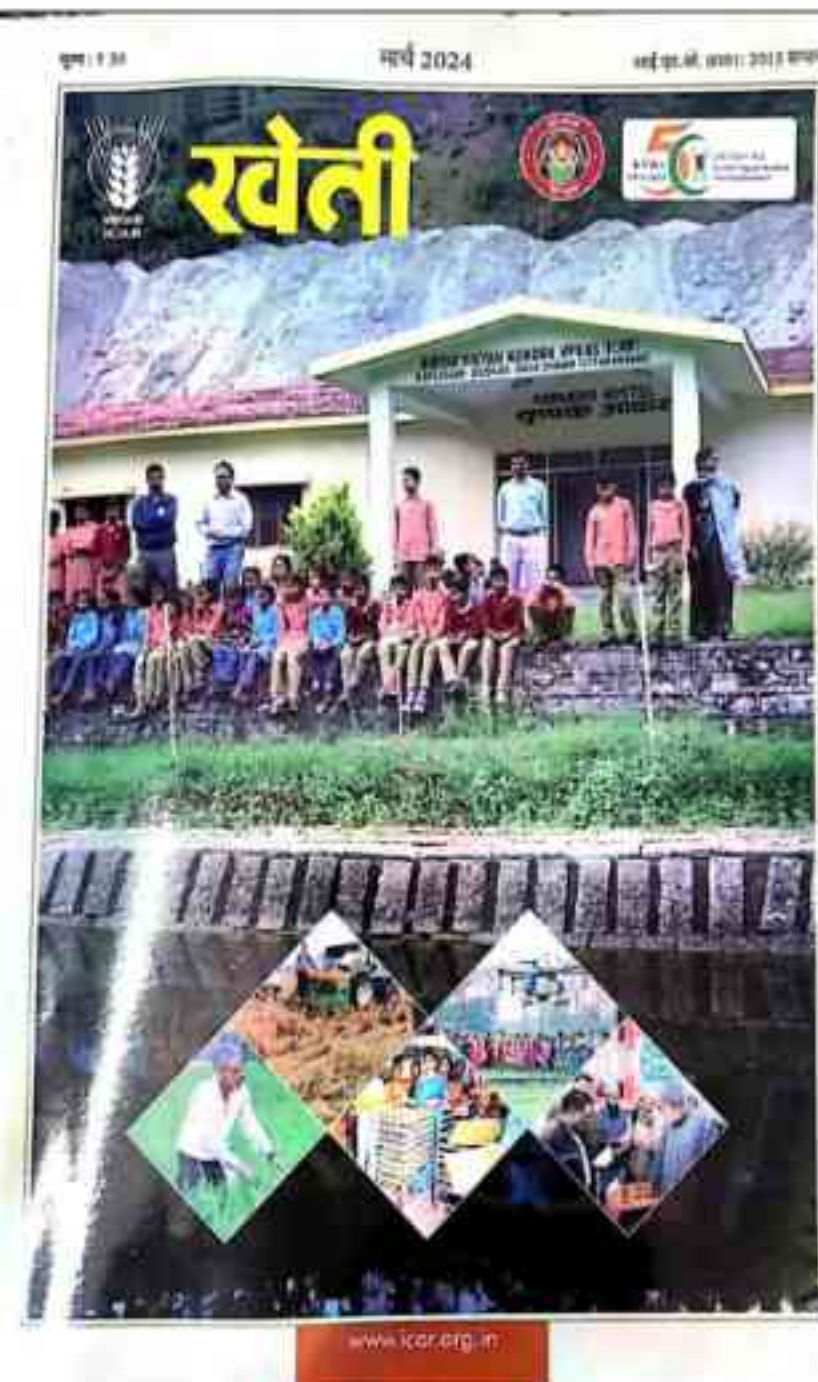


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Singh A. K., Pandey B., Rajan N., Kumar A., Singh, N. (2019). Organic Farming, an initiative for tribal farmers. *Indian Farming* 69 (05): 9-12.



www.vcp.org.cn

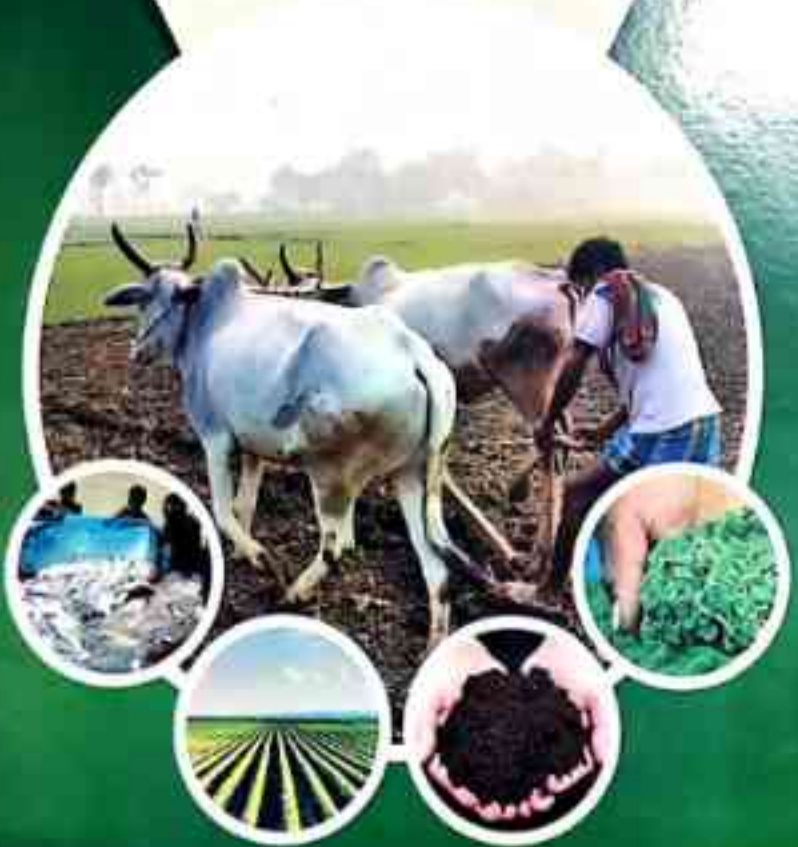


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Singh, A. K., Singh, R. K., Kumar, A., Kumar A., Bhadauria, P. (2024). Sthaniya sansadhan adharit jaivik kheti se badhayen amadani (Hindi). Kheti 2024: 10-14.

iii. Booklets published on "Low-Cost Organic Farming"

कम खर्च में जैविक खेती



रामकृष्ण मिशन आश्रम
दिव्यायन कृषि विज्ञान केन्द्र
मोराबादी, राँची



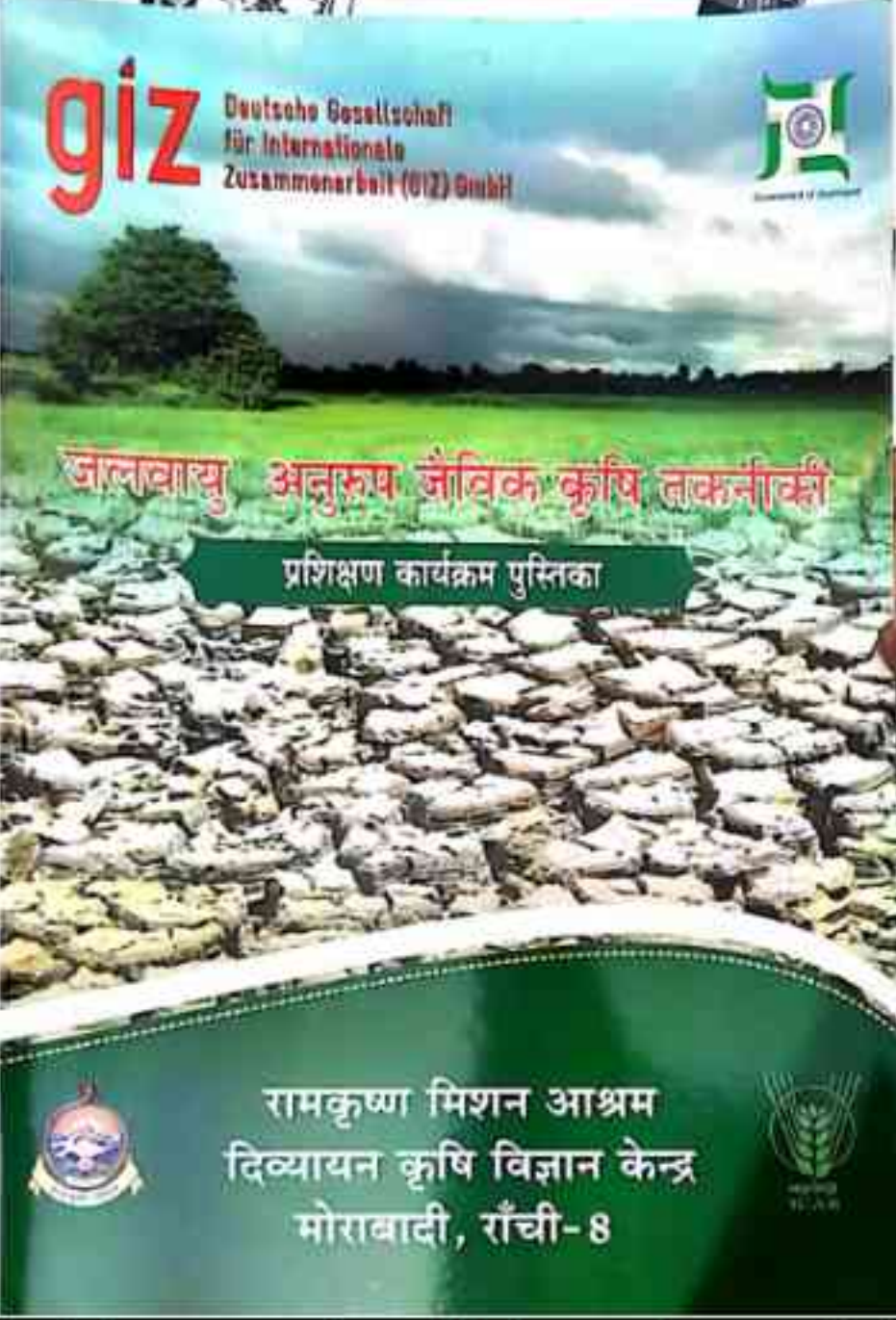
अनुक्रमणिका

	पृष्ठ संख्या
1. जैविक खेती - परिचय	3
2. जलवायु परिवर्तन के कारणों में कृषि तकनीकी	8
3. समेकित जैव पद्धति में रोपे एवं बीजों का प्रबंधन	17
4. जैविक खेती में कीट नियंत्रणों का उपयोग	21
5. जलवायु द्वारा पृथ्वी पर जल संचयन का जैव नियंत्रण	24
6. जलवायु द्वारा पृथ्वी पर जल संचयन	26
7. जलवायु द्वारा पृथ्वी पर जल संचयन	28
8. जलवायु	30
9. जलवायु परिवर्तन के कारणों में कृषि तकनीकी	32
10. जलवायु के परिवर्तन के कारणों में जलवायु तकनीकी	40
11. जलवायु (जैविक) जैविक खेती को दिला में एक नया कदम	43
12. जलवायु - जल जैविक खेती	48
13. जलवायु एक जलवायु जैविक खेती	49
14. जलवायु की गुणवत्ता बढ़ाने का जलवायु विकास	52
15. जलवायु विकास का जलवायु - जलवायु	54
16. जलवायु विकास का जलवायु एवं जलवायु विकास	56
17. जलवायु विकास	58
18. जलवायु विकास - जलवायु विकास का जलवायु	62
19. जलवायु विकास - जलवायु विकास का जलवायु - जलवायु विकास	66
20. जलवायु विकास	68
21. जलवायु विकास के विकास	73
22. जलवायु	80



Booklet published on Low Cost Organic Farming by Divyayan KVK, Ranchi

iv. Training manual



giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

जलवायु अनुरूप जैविक कृषि तकनीकी
प्रशिक्षण कार्यक्रम पुस्तिका

रामकृष्ण मिशन आश्रम
दिव्यायन कृषि विज्ञान केन्द्र
मोराबादी, राँची-8



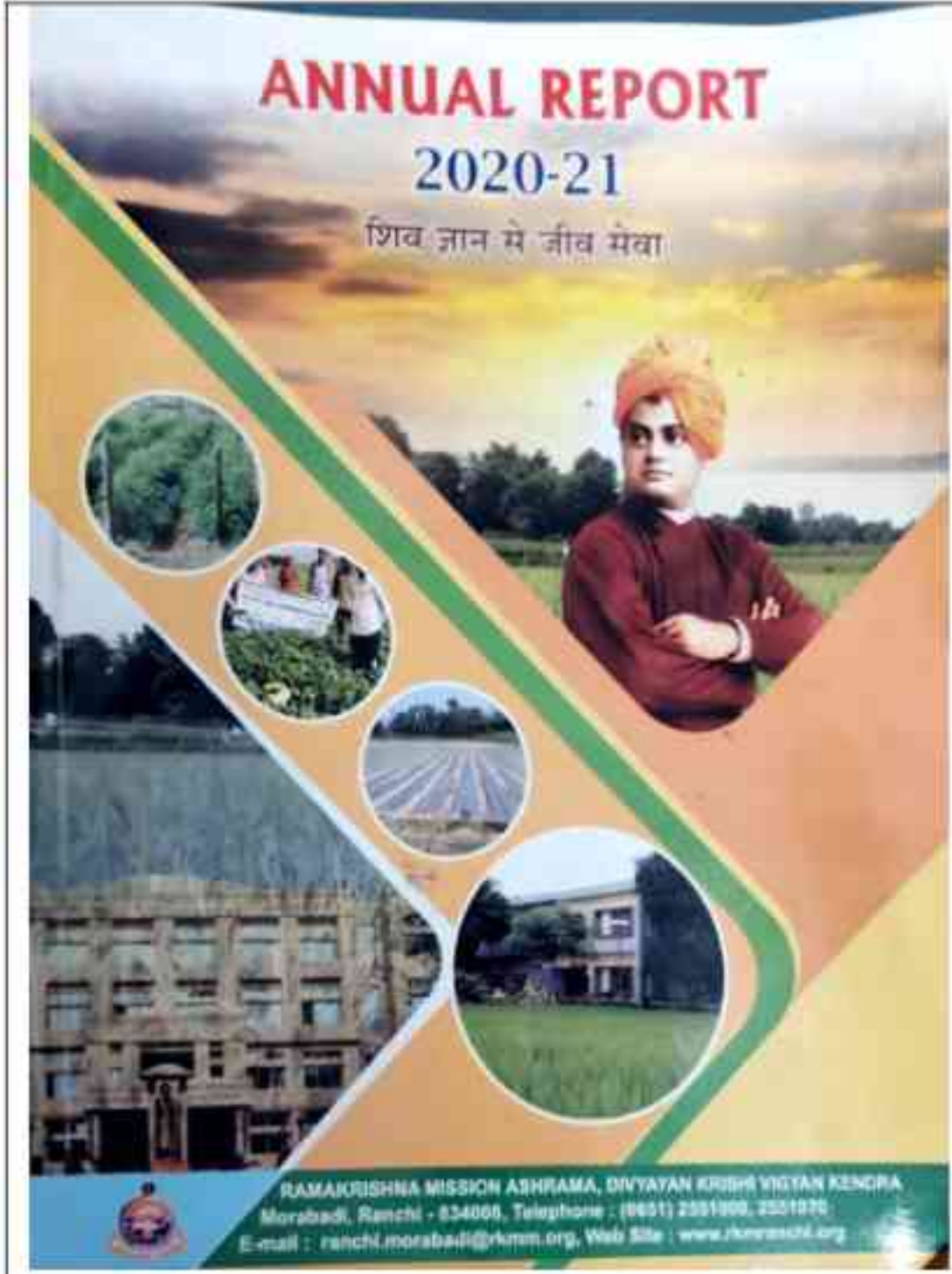
अनुक्रमणिका

	पृष्ठ संख्या
1. कम खर्च में जलवायु अनुरूप जैविक खेती	03
2. समेकित जैव पद्धति में रोपे एवं बीजों का प्रबंधन	10
3. जलवायु द्वारा पृथ्वी पर जल संचयन	14
4. जलवायु परिवर्तन के कारणों में खेती	16
5. जलवायु परिवर्तन के कारणों में कृषि एवं जलवायु तकनीकी	22
6. जलवायु विकास में महिलाओं की भूमिका	25
7. जलवायु अनुरूप पशु-पक्षी प्रबंधन	28
8. जलवायु विकास का जलवायु विकास	30

Training manual on "Jalvayu Anurup Jaivik Krishi Takniki" published by Divyayan KVK, Ranchi

v. Reports and success stories published in institutional annual reports

कृषक दोषो भव सर्व से पुकार कर करो जो से किसान हैं ANNUAL REPORT 2018-19 ज्ञिव ज्ञान से जीव सेवा  जैविक खेती अपनाओ, कम लागत में दुगुना पाओ Ramakrishna Mission Ashrama Divyayan Krishi Vigyan Kendra Morabadi, Ranchi - 834008 Phone : 0651-2551008, 2551970 E-mail : ranchi.morabadi@rkmm.org, Website : www.rkmranchi.org	Development of Organic Cluster of Villages We have seen the negative impact of chemical fertilizer and pesticides. Nutrients contained in these fertilizers are present in a form which is readily and easily absorbed and thereby increases the plant growth. But latter growth attracts the pest better and to neutralize them again chemical pesticides are used. In the long run, it acidifies the soil and kills the beneficial soil organisms. These fertilizers do not add up to the soil and do not contribute anything to enhance soil fertility. It produces fruits and vegetables with lower nutritional value and less flavour. Repeated use of chemical fertilizers causes toxic chemicals can ultimately find their way into the fruits and vegetables that are grown. Consumption of these foods gives birth to incurable diseases. Moreover, it pollutes the environment contaminating both air and water due to leaching of chemical residues. Keeping these things in view, Divyayan KVK has already converted its demonstration farms into organic demonstration farm and with the sponsorship of NABARD and Tribal Sub Plan (TSP) programme under KVK has initiated movement through a Project Called "Development of Organic Cluster". The project covers three villages Barhukocha, Dhurleta and Piprbera of Angara Block and supports 90 families. During the reporting period Dhurleta has been declared as the First Organic Village of Jharkhand. These 3 villages have already been declared organic villages as all the farmers have adopted the organic method of cultivation and are PGS-certified. Following infrastructural supports were provided to farmers of these above said villages Nadep Compost Tank - 95 Nos. Vermi Compost Tank - 101 Nos. Cow Floor - 91 Nos. Drums for preparing Bio-Pesticides - 910 Nos. Seeds for Green Manuring and Trichoderma for management of soil born diseases. 2838 plants of Neem, Karanj, Taprota, Glyricidia, Subabool etc. were also distributed for development of agro forestry model in selected villages. Sesbania as green manuring crop was cultivated before the main crop for improving soil health. Farmers have also been provided market linkage for their produce through an agency called "Nature Cart", which collects the produce from the farmers at their door steps.  Nadep Compost Tank  Vermi Compost Tank  Containers for bio-pesticides  Organic Farming at Dhurleta
कृषक दोषो भव सर्व से पुकार कर करो जो से किसान हैं ANNUAL REPORT 2018-19 ज्ञिव ज्ञान से जीव सेवा  जैविक खेती अपनाओ, कम लागत में दुगुना पाओ Ramakrishna Mission Ashrama Divyayan Krishi Vigyan Kendra Morabadi, Ranchi - 834008 Phone : 0651-2551008, 2551970 E-mail : ranchi.morabadi@rkmm.org, Website : www.rkmranchi.org	INNOVATION AND SUCCESS STORIES Dhurleta the First Organic Village of Jharkhand It is well known that chemicals fertilizers and pesticides were ruining the productivity of the soil by killing the rich microbes, and also affecting the quality of produce. Divyayan Krishi Vigyan Kendra, Ramakrishna Mission Ashrama always has a dream to make the Ranchi District a organic district. To materialise this dream, this institution has started various programmes for promoting organic farming since last 12 year along with the Ramakrishna Mission Vivekananda Education and Research Institute, Ranchi  Field centre. To motivate the farmers it first changed its own farms into organic farms and a number of training programmes were organized on low cost local resource based organic farming. Then in the year 2016, with the sponsorship of NABARD, Ranchi, 'Organic Cluster Development programme' was started covering Dhurlet and two of its neighbouring village Barhukocha and Piprbera of Angara Block. Under this programme, the farmers of these village were provided with training and required infrastructure like vermi compost and Nadep Tank, cow sheds, plastic drums for preparing liquid organic fertilizer and pesticides. In all, 95 units of NADEP compost, 101 vermi compost unit and 91 contained cow floor for collection of cow urine were constructed for all the farmers. 910 plastic drums were distributed for preparation of liquid manure and 2838 plants of Neem, Karanj, Taprota, Glyricidia, Subabool etc. were also distributed for development of agro forestry model in selected villages. Sesbania as green manuring crop was cultivated before the main crop for improving soil health. After 



conduct shows on various aspects of rural development, agricultural production and spirituality. This year in total 32 shows were held involving 2336 nos. of beneficiaries.

Sri Ramakrishna Krishak Gosthi

Like every year this year the Ashrams could not conduct Regional Kisan Melas and Central Kisan Mela due to restriction imposed by State and Central Government to contain spread of Corona Virus but a Krishak Gosthi was organised based on the theme 'Jeeat Krishi Bhavati, Bhavayee - Jee Jigant Bhavayee'.

This Krishak Gosthi was organised under the joint collaboration of Ramakrishna Mission Ashrama, Divyayan KVK, Morabadi, Ranchi and Vivekananda Seva Sanghas of Angara Block. The Gosthi was mainly sponsored by ATMA (Agricultural Technology Management Agency), Ranchi.

The objectives of organizing this Krishak Gosthi were - to bring awareness among the farmers about the importance of soil health, introduce farmers with new technologies of agriculture, popularize organic farming and boost confidence among the farmers in adopting organic farming for the healthy environment and healthy society without losing productivity, demonstrate low cost implements to reduce drudgery and increase agricultural productivity, inform the farmers about the role of banks in agriculture and make convergence with different government schemes and departments for farmers benefit.

To meet the above objectives stalls, models, live demonstrations, audio-visual shows, charts and posters display were organized during the Krishak Gosthi. All the events and shows were conducted in local/Hindi languages to reach the farmers.

The Gosthi was jointly inaugurated on 13th February, 2021 by Smt. Anita Gadi (Block Pramukh, Angara). Shri Rajesh Kumar (Sub-Inspector, Angara).

KISAN GOSTHI

Annual Report - 2020-21 | 10

Shri Sanjay Kumar (Deputy Project Director, ATMA, Ranchi) and Swami Bhaveshanada, Secretary Mahanta of this Ashrama.

Technical session was conducted in the first phase of the program in which Scientists of Divyayan Krishi Vigyan Kendra, and Professors of Ramakrishna Mission Vivekananda Educational and Research Institute, Ranchi discussed organic farming in detail and also answered the questions of farmers.

Pahlu Bediya of Obar Village of Angara Block, welcomed all the farmers and discussed the activities carried out for rural development in Angara Block by Divyayan Krishi Vigyan Kendra, Ranchi. Dr. Ajeet Kumar Singh (Senior Scientist & Head) addressed the farmers and provided the detailed information about projects run by ICAR like ARYA (Attaining Rural Youth Attention), TSP (Tribal Sub Plan), DRMR (Directorate of Rapeseed - Mustard Research) Bharatpur. Shri Sanjay Kumar of Angara block motivated the farmers for adopting Organic Farming. Dr. Raghev Thakur, Dean Ramakrishna Mission Vivekananda Educational and Research Institute (RKMVERI), Morabadi Faculty Centre discussed about importance of bio-fertilizers to make soil healthy and durable. He said that fruits and vegetable produced through organic farming system are more nutritious for human being. While addressing the farmers, giving the importance to the farmers, Chief Guest Smt. Anita Gadi emphasized on doubling the production and doubling the farmer's income by organic farming and micro irrigation system.

Swami Bhaveshanada, secretary, Ramakrishna Mission Ashrama in his presidential address said, moral education is necessary for any sustainable and holistic development. He stressed that through organic farming, farmers can improve their income as well as health. He discussed the efforts made by Ramakrishna Mission Ashrama, to conserve the traditional culture and arts of Jharkhand.

Stalls and Live models: 14 stalls from various research institutes, private seed and fertilizer companies,

KISAN GOSTHI

26 | Annual Report - 2020-21

agricultural implements companies etc. were put up.

Crop and Animal Exhibition: To encourage and increase the participation of the farmers and for horizontal dissemination of technology the farmers were given prior information to bring their own produce as exhibits to be awarded for the best ones. Crops and animal exhibits like good quality vegetables, fruits, handicrafts, lac and mushroom and good breeds of healthy animals were brought by the farmers in the Mela. 75 farmers were given prizes for their best exhibits.

Farmers' Attraction: The Krishak Gosthi proved a major source for transfer of latest and innovative technologies to the farmers. Visit of live demonstration units, the stalls and the Gataksud demonstration farm during farmer's fair provided an opportunity to the farmers to watch the practical demonstration of the technologies displayed in stalls and in field. They had interaction with scientists concerned. Along with Kisan Gosthi, Cultural Programmes too were organized for farmers.

KISAN GOSTHI

Annual Report - 2020-21 | 11

Development of Organic Villages Cluster

We have seen the negative impact of chemical fertiliser and pesticides. Indiscriminate use of these fertilizers has badly affected the soil health. It acidifies the soil and kills the beneficial soil organisms. These fertilizers do not add up to the soil and do not contribute anything to enhance soil fertility. They help produce fruits and vegetables with lower nutritional value and less flavour. Repeated use of chemical fertilizers causes toxic chemicals which ultimately find their way into the fruits and vegetables that are grown. Consumption of these foods gives birth to incurable diseases. Moreover, it pollutes the environment contaminating both air and water due to leaching of chemical residues.

Keeping these things in view, Divyayan KVK has already converted its demonstration farms into organic demonstration farms and with the sponsorship of NABARD and Tribal Sub Plan (TSP) programme, the KVK has initiated movement through a Project Called "Development of Organic Cluster". During the period 2017-18 three villages Surhakocha, Dhurleta and Piprabera of Angara Block covered under the project supporting 90 families were converted into organic villages where all the farmers have now adopted organic method of cultivation. During the period (2018-19 and 2019-20), organic cluster was developed in Nagrabera, Simratoli, Gundlitoli of Angara Block (each of 50 acres). During the period(2020-21) organic cluster was developed in Dublabera under Angara Block of Ranchi District with the financial support under TSP Programme (KVK). Initially 50 acres of land was undertaken for organic farming.

Following infrastructural supports were provided to the farmers of above said village

Village Dublabera (29 Beneficiaries)

Cow floor- 35 Nos.

Drums for preparing Bio-Pesticides-14 nos. (each of 200 ltr), 14 nos. (each of 100 ltr), 14 Nos. (each of 30ltr)

Pumpset (Thp)- 6Nos.(From DRMR sponsored Project)

Front line demonstration under CFLD programme was carried out on crops like linseed, rizer and mustard covering 75 acres.

3 (Three) awareness programme, 2(two) one day training programme and Field Days were carried out to boost confidence of farmers in organic farming.



NADep Compost Tank and Cow Floor



Chilli Cultivation with mulching



Cow floor



Plastic Drum for Liquid Manure

weight, moisture content, odour and vector attracting qualities of manure and other farm generated wastes leading to a lower risk of pollution. After training programme KVK constructed animal shed floor in every beneficiary's house for efficient collection of urine, dung and waste fodder to be used as main ingredient for preparation of manure, constructed permanent structure of NADep, vermi-compost and Compost Pit etc. and distributed plastic drums/ cans for preparation of organic liquid manure and bio-pesticide. After that farmers adopted the scientific organic practices which are based on low input cost. Compost, vermi compost, nadep compost etc. are used to enhance soil fertility. Locally available natural materials are used to prepare liquid manure like sasyagavya, sanjeevani, kunapajala, panchagavya etc. to increase soil productivity by improving soil environment.

Following activities done for the development of organic villages

Activities	Name of Organic Villages					
	Dhurleta	Budhakocha	Piprabera	Gundalitoli	Simratoli	Nagrabera
No. of Beneficiaries	29	43	18	36	20	29
construction of NADep Compost unit	31	45	18	36	20	29
Construction of Vermi Compost unit	30	53	18	36	20	29
Distribution of drum for preparation of organic manure	390	430	180	360	10	290
Construction of cow floor	29	43	18	36	20	29
Construction of Azolla Tank	-	-	-	36	20	-



PHOTOS

B. Glimpses of different activities

i. Infrastructure created



Construction of cow shade floor



Construction of NADEP and vermin-compost pit



Distribution of drums for preparation of liquid organic manures and pesticide

ii. Training and awareness programs conducted for promotion of the technology









Different on and off campus awareness -cum- training programs organized

iii. Implementation of organic cluster project initiative at Dhurleta and other villages



Implementation of NABARD sponsored Model Organic Project



Inspection of the progress of the project by CGM, NABARD, Ranchi



Liquid manure and compost production unit



Preparation of Dashparni by beneficiary farmer



Organic crop of cauliflower at farmer's field



Organic crop of cabbage at farmer's field



Organic crop of cow pea at farmer's field



Organic crop of sunflower at farmer's field

C. New paper coverage of declaration of Dhurleta as Jharkhand's "First" organic village (Published in different print media platforms)



D. YouTube links related to promotion of organic farming

A screenshot of a YouTube video player. The video title is "धुरलेटा की बदलती तस्वीर" (Dhurleeta ki badalti tasvir) and the channel is "KRISHI DARSHAN RANCHI". The video is dated "05th JANUARY 2022". The video content shows a lush green agricultural field with rows of crops, framed by a yellow hexagonal border. The YouTube interface includes the search bar at the top, the video player with a progress bar, and the channel information at the bottom.

https://youtu.be/qYy_r7qn9TU

https://youtu.be/q_s1vGiuhUw



Office of District Agriculture Officer, Ranchi

(Department of Agriculture, Animal Husbandry & Co-operative)

Krishi Bhawan Campus, Kanke Road - 834008

Letter No. 1060

Ranchi / Dated: 5/12/24

From

District Agriculture Officer
Ranchi (Jharkhand)

To

Dr Ajeet Kumar Singh
Senior Scientist & Head
KVK, Ranchi

Sir,

I would like to congratulate the team involved in "**Promotion of Low Cost Local Resource based Organic Farming**" project running in 700 acres of 13 villages of Angara Block of Ranchi district from 2017 to 2021. through projects funded by KVK & ICAR institute Tribal Sub Plan, PKVY and NABARD. As an effect of the efforts made by this team, farmers of these villages have fully adopted organic farming practices in sustainable manner which is not only improving soil and environmental health but significantly reducing crop production cost also.

S.N	Name of Village	Area (Acre)	Year	Team Members
1	Dharleia	50	2016	1. Dr Ajeet Kumar Singh (Nodal Officer)
2	Budhakocha	65	2016	2. Dr Rajesh Kumar
3	Piprabera	25	2016	3. Dr manoj Kumar Singh
4	Nagrabera	50	2019	4. Dr Bharat Mahto
5	Dublabera	50	2020	5. Dr Neha Rajan
6	Gunditoli	100	2018	6. Dr Ravindra Kumar Singh
7	Simratoli	65	2018	7. Dr Vishakha Singh
8	Rangamati	50	2022	
9	Ober	50	2022	
10	Nawagarh	50	2022	
11	Barkigorang	50	2022	
12	Soso	50	2022	
13	Chhotkigorang	75	2023	

All members of this team deserve a great appreciation for their rigorous efforts and contribution to environmental health and farmers' welfare.

Once again, I congratulate the members of this team.

(Signature)
District Agriculture Officer
Ranchi