

Seed Village Programme: From seed Self-sufficiency to Rural Entrepreneurship

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The Seed Village Programme (SVP), launched in 2005, has evolved from a localized seed multiplication initiative into a nationwide agribusiness platform fostering rural entrepreneurship and enhancing India's seed self-sufficiency. Operating on a cluster-based approach, SVP trains farmers to produce foundation and certified seeds under strict quality standards and institutional oversight. Supported by agencies like ICAR, SAUs, KVKs, and SSCAs, the programme integrates technical training, certification and fiscal incentives through schemes like SMSP. Digital tools such as Seed Net and QR-coded tags ensure traceability, while community seed banks and women-led seed enterprises further promote inclusion and local resilience. Empirical evidence from states like Telangana, Gujarat, Odisha, and Tamil Nadu highlights increased Seed Replacement Rates (SRR), profitability, and reduced migration. The model's convergence with NABARD, NFSM and NFDB illustrates its cross-sector scalability from pulses and oilseeds to fisheries making SVP a replicable template for rural innovation and agripreneurship. Strengthening digital monitoring, women's processing units and market access will amplify its future impact as a driver of inclusive, climate-resilient agri-growth.

Keywords: Seed Village Programme, Seed Replacement Rate, Agripreneurship, Certified Seed Production and Rural Entrepreneurship.



Introduction

Timely access to genetically pure, affordable seed remains the first yield-determining input for Indian farmers. In 2005 the National Seed Village Programme (SVP) popularly known as Beej Gram Yojana was launched to localise seed multiplication and raise the Seed Replacement Ratio (SRR). Two decades on, SVP covers 64000+ village and has lifted the average SRR in pulses from 19 per cent (2005) to 38 per cent (2023), while spawning a new cohort of rural seed entrepreneurs (DAC & FW 2024). The Seed Village Programme (SVP) operates on a cluster- based model in which 50-150 progressive farmers within a village that offers suitable agro-ecological conditions are trained to raise foundation or certified seed.

This spatial concentration simplifies field inspections, reduces genetic contamination, and enables economies of scale in training and input delivery (Department of Agriculture, Cooperation & Farmers Welfare (DAC & FW 2026).

Crop choice is driven by regional adaptability and market demand, with priority given to pulses, oilseeds, cereals, and fodder-commodities that historically exhibit low seed replacement rates (NFSM,2021). Institutional convergence underpins the programmer the Indian Council of Agricultural Research (ICAR) supplies breeder seed and standardized production protocols. State Agriculture Universities (SAUs) and Krishi Vigyan kendras (KVKs) translate this knowledge into farmer- friendly training on isolation distances, varietal purity, pest and disease management, and scientific storage (ICAR, 2021). State Seed Certification Agencies (SSCAs) conduct rigorous field inspections during flowering and physiological maturity, and post-harvest seed lots are tested for germination, physical purity, and health, while areas facing logistical constraints are permitted to market truthfully labelled seed under official oversight (DAC&FW, 2006).

SVP further incentivizes participation through the Sub-Mission on Seed and Planting Material (SMSP), which reimburses 50 per cent of production costs for cereals and 60 per cent for pulses, oilseeds, and fodder crops, thereby lowering entry barriers for smallholders (PIB, 2021). Digital tools-QR-coded seed tags, real- time Seed Net entries, and online subsidy tracking- have been rolled out to improve traceability and curb fraudulent seed trade (SeedNet,2025). Complementary schemes such as National Institute of Agricultural Extension Management. Agri-Clinics and Agri-Business embed agripreneurship modules into SVP trainings, expanding farmer's market organizations and self-help groups, exemplified by



Rashtriya Gramin Vikas Nidhi women-led soybean clusters in Assam, add social-inclusion dimensions through community seed banks and collective marketing. Collectively, the SVP's integrated training, certification rigour, fiscal incentives and digital transparency form a replicable model for bolstering India's seed self-sufficiency while nurturing rural agripreneurship. This articles traces the programme evolution, operational mechanics and agripreneurship outcomes and offers an action agenda for scaling quality seed systems.

Historical Evolution of the Seed Village Programme in India

The concept of SVP grew out of a 1964 All-India Co-ordinated Research Project in Jounti village that demonstrated how clustering progressive farmers, supplying nucleus seed and enforcing rouging protocols could secure varietal purity and on-time access to seed within a single agro-climatic pocket. Encouraged by this proof of concept the ministry of Agriculture embedded the idea in the National seeds policy which formally endorsed seed villages schemes for localised multiplication and timely distribution of improved varieties. A decisive national rollout followed in 2005-06, when the department of Agriculture and farmers welfare issued the first "Guidelines for implementation of seed village scheme setting targets for 50-150 growers per villages, subsidised foundation and mandatory training through State agricultural universities, Krishi Vigyan Kendras and State Seed Certification agencies. By 2011 the scheme had expanded to more than 35000 villages and helped life SRR in several pulses and oilseed dominated district (<https://seednet.gov.in>).

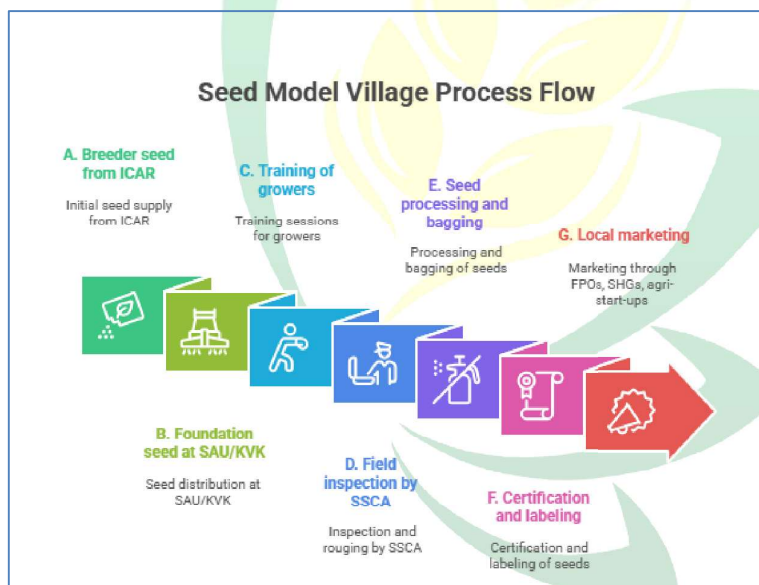
During the 12th plan the programme was reorganised as a dedicated Sub-Mission on Seeds & Planting Materials (SMSP) under the National Mission on Agricultural Extension and Technology (NMAET) in 2014. SMSP broadened funding windows, introduced electronic monitoring of lot certification and standardised 50% of seed cost for cereal crops and 60 per cent cost-subsidy for certified seed of pulses, oilseeds and fodder crops delivered through village-level seed hubs managed by SAUs, KVKS and cooperative federation (PIB 2021) From 2015 onwards SVP began converging with other flagship schemes. Under the National Food Security Mission (NAFM), seed village clusters now anchor district level seed mini-kits, pulse seed hubs and cluster frontline demonstrations aimed at closing yield gaps in rain- fed areas and enhancing varietal replacement in coarse cereals (nfsm.gov.in).

Parallel funding through Rashtriya Krishi Vikas Yojana (RKVY-RAFTAAR) finances community seed banks and mobile processing units, while the central 10000-FPO

scheme implemented by the Small Farmers Agribusiness Consortium(SFAC) encourages FPO to assume seed production and marketing at cluster scale, turning SVP from a seed availability model into a rural agribusiness platform that increasingly engages women self-help groups and agri-entrepreneur trainees (sfacindia.com). In six decades the SVP has thus evolved from a single-village experiment to multi-mission digitally tracked national infrastructure that improves SRR, assures genetic purity and empowers farmers as certified seed entrepreneurs, making quality seed both community asset and driver of inclusive agri-growth in India

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Seed Model Village works



1. **Cluster approach:** progressive farmers within the same agro-ecological pocket adopt identical varieties, simplifying inspection and isolation.
2. **Hand holding:** ICAR, SAUs and KVK deliver season-long training on production standards, rouging and moisture safe storage



3. **Certification rigour:** State Seed certification Agencies monitors three field stages and test post-harvest lots for physical purity, germination and seed health.
4. **Incentives:** Under the Sub-Mission on Seeds & Planting Materials (SMSP) farmers receives a 50per cent cost subsidy for cereal crops and 60per cent for pulses, oilseeds and fodder.
5. **Digital traceability:** Seed Net entries, QR coded tags and e-subsidy tracking curb counterfeit trade and speed up payments

On the Ground Impact SVP on Scaling Agripreneurship and Cross-Sector Rural Enterprises Across India

The Seed village programme has proven most potent where knowledge, credit and market linkage converge. In Telangana's Karimnagar and Warangal district, an ICAR-backed Difference-in Difference study showed that trained seed growers captured a 69.01 % jump in net profits, whereas neighbouring grain farmers registered only 5.63 % gains. Education level, seed acreage and farming experience explained over 701 % of that profit differential, underscoring the agripreneurial premium that SVP delivers once technical rigour is internalised (Bhavani *et al.*, 2022). Comparable momentum is visible in western India, where an extension study on the groundnut belt of Saurashtra, Gujarat recorded a sharp rise in the seed Replacement Rate after two consecutive SVP cycles. Farmers who earlier reused farm-saved pods now source breeder-grade kernels from Junagadh Agricultural University, lifting pod yield as well as oil recovery and nudging the region back towards its historical export dominance (JAU, 2016).

Evidence from three Agro Climatic Zones

Indicator	Karimnagar & Warangal (Telangana, Pulses)	Saurashtra (Gujarat, Ground nut)	Khairmal (Odisha, Black Gram)
Baseline SRR (%)	18	22	21
SRR after @ SVP cycle (%)	44	51	47
Net Profit lift (Rs ha ⁻¹)	+41,300	+21,600	+18,400

Pay-back period (Season)	1	1	<1
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Sources: Bhavani et al. 2022; JAU, 2016; NABARD 2024.

Farther south, Sadivaiyal, a tribal hamlet near Coimbatore in Tamil Nadu, leveraged SVP to move fully organic cluster farming. Group ownership of seed extraction and on-farm composting units setup with the support of ICAR-KVK and a NABARD revolving fund cuts input cost, diversified diets and crucially kept teen agers from out-migration by engaging them in seed grading and e-commerce packaging (Indian farming 2021)

Eastern India offers equally instructive examples. In the rain-fed Khairmal village, Sambalpur (Odisha), NABARD Farm-sector promotion fund financed a black-gram seed village managed by the local NGO ADARSA. One-hundred-plus SC/ST households, previously migrated for seasonal work, now earn a stable surplus by marketing foundation seed to neighbouring blocks. Surveys also noted lower migration, better household nutrition and the first instances of women taking lead roles in seed processing committees (NABARD, 2024). SVPs decentralised logic also helped Odisha build community seed banks for pulses, an initiative spotlighted in ICAR discussion on “Propagation of Seed-Village Concept and Community Seed Bank”. Locally run banks supply verified seed just before the narrow planting window, slashing both price volatility and the turnaround time that used to force growers to rely on traders’ grain as seed (ICAR, 2023). What makes these agricultural cases replicable is the finance plus incubation architecture that NABARD layers on top. Its recent booklet *Innovations Transforming Landscapes* details Odisha black gram seed village and dozens of allied micro-enterprises- mobile seed vans, AI-enabled traceability devices for handlooms FPOs, Mano WADI collectives –that collectively generated turnovers topping ₹80 lakh during Balijatra 2024 while creating rural jobs. The same documents show NABARD’s credit and capacity building envelope expanding from seed clusters to watershed mushroom units and tribal orchard, confirming the banks pivot from narrow lending to holistic agripreneur support (NABARD, 2024).

SVP principles have now spilled into the fisheries sector through the National Fisheries Development Board. NDFAB 100 Super Success stories archive highlights entrepreneur-model hatcheries and community pond initiative that marry hatchery science (often transferred from ICAR-CIFA) with business mentoring. Examples range from Assam Pabhoi

Fish Farm, where a network hatchery scaled quality fingerling sales and advisory services, to Punjab farmer –led shrimp culture clusters that lifted per-acre incomes and fed India's Inland export pipelines. Each base mirrors the core SVP cycle, quality seed/fry, skill training, incubation finance and assured market linkage (NFDB, 2025). Taken together these field results validated SVP as more than a seed replacement scheme. When ICAR varietal purity protocols dovetail with NABARD credit incubation and NFDB cross sector adaptation the outcome is a lattice of rural enterprises that within same village boundary handle genetic up gradation, value addition brand building and last mile destination. Profits rise migration falls and new agripreneur (increasingly women and youth) find viable careers in the seed and fingerling economies. As the government moves to double SVP coverage to 60000 villages and NFDB scales PMMSY fish-seed clusters these success stories offer a clear roadmap, keeping the science rigorous, bundle finance with hand-holding and let local entrepreneurs own downstream business that quality seeds inevitably generates

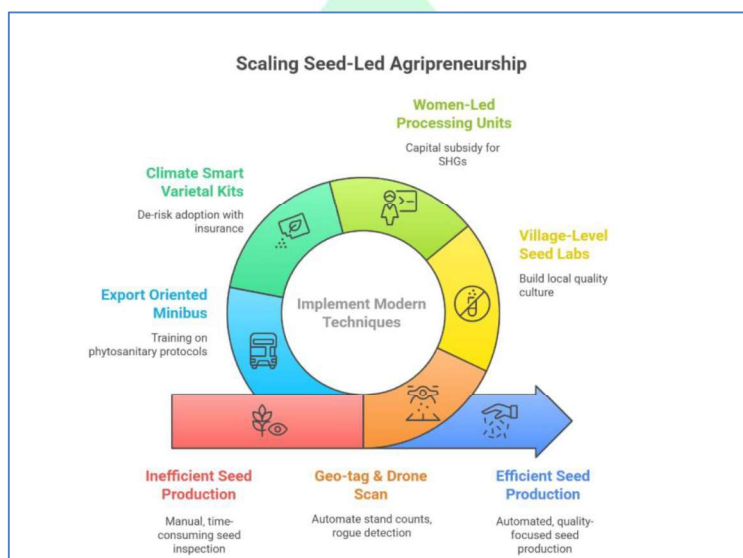
Challenges and Mitigation

Bottleneck	Manifestation	Mitigation in progress
Climate volatility	Untimely rain damages flowering & drying	Promotion of short duration, climate smart varieties; on farm solar dryers
Rogue seed trade	Counterfeit labels, poor germination	QR tags, Seed Net Public lookup, periodic materials examination
Ageing grower base	Youth perceive seed work as low-tech	Agripreneurship modules, start-up grants, e-commerce channels
Working-capital gaps	Delay in paying growers for certified lots	Tie-up with NABARD, PACS and FPO credit lines

Way Forward: Scaling Seed-Led Agripreneurship

1. **Geo-tag & Drone Scan Seed Plots:** Automated stand counts and rogue detection can halve inspection time.

2. **Village-Level seed labs:** Mini-kits for vigour and seed health test build local quality culture.
3. **Women led processing units:** Capital subsidy for destoners, graders and automatic baggers reserved for SHGs
4. **Climate Smart varietal Kits:** Bundled with weather insurance and advisory SMS to de-risk adoption
5. **Export oriented Minibus:** Training on phytosanitary protocols can position FPOs in SAARC seed corridors.



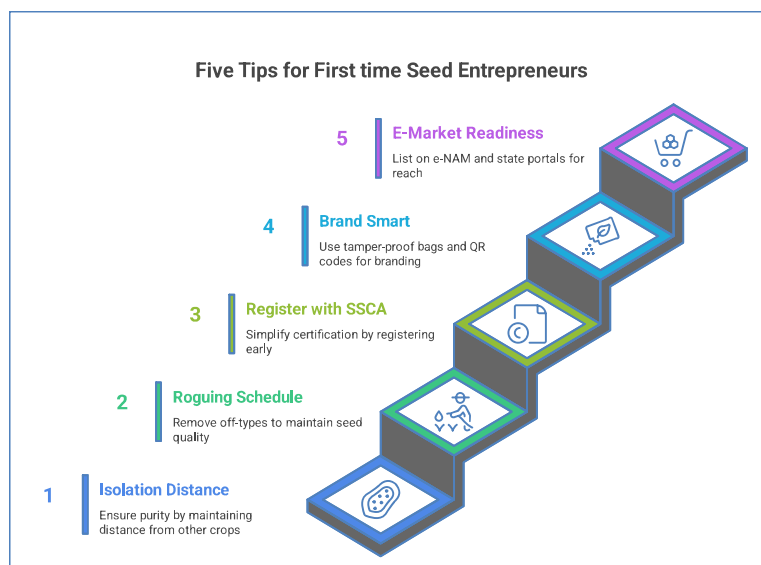
Global Perspective Box

Many African and southeast Asian nations deploy community seed systems akin to SVP. Ethiopia's quality Decalare4d Seed Scheme trains smallholders under relaxed certification norms, while Malawi's Community Seed Banks safeguard local landraces. India's model outpaces both in digital traceability and agripreneur convergence, offering a template for South-South collaboration (FAO, 2023).

Five Tips for First time seed Entrepreneurs

1. **Isolation distance** : follow blue book (IMSCS) or SAU crop manuals, even % m drift ruins purity

2. **Roguing Schedule** : Remove off-types thrice during pre-flowering, flowering and pre-harvesting stage
3. **Register with SSCA early**- obtaining lot number before sowing simplifies certification
4. **Brand smart**: Use tamper proof bags and QR-coded labels
5. **E-market readiness**: List on e-NAM and State seed portals for premium reach.



Conclusion

The Seed Village Programme has evolved from a simple seed-multiplication aid into a vibrant rural agribusiness platform that raises Seed Replacement Rates (SRR), stabilizes yields, and opens profitable career opportunities for youth and women. By linking farmers directly with seed production, processing, and marketing, it has created a self-sustaining seed ecosystem within villages, reducing dependence on external markets while promoting collective action that enables farmers to access quality inputs, modern technology, and assured buy-back arrangements. Furthermore, the integration of geo-spatial monitoring, climate-smart and biofortified varieties, and dedicated credit lines will significantly enhance efficiency, traceability, and profitability. With the growing emphasis on seed quality assurance, digital certification, and farmer-led seed enterprises, the programme can emerge as a pillar of Atmanirbhar Krishi (self-reliant agriculture). As India moves toward nutrition security, climate resilience, and an export-ready seed system, the Seed Village Programme offers a practical model of technology-driven, inclusive, and sustainable rural transformation,



and by strengthening capacity building, establishing seed hubs, and ensuring convergence with ongoing schemes like the National Seed Mission and Farmer Producer Organizations (FPOs), its outreach and long-term impact can be further amplified.

References

1. Bhavani, G., Sreenivasulu, M., Naik, R. V., Reddy, M. J. M., Darekar, A. S., & Reddy, A. A. (2022). Impact assessment of seed village programme by using difference in difference (DiD) approach in Telangana, India. *Sustainability*, 14(15), 9543.
2. DAC&FW. (2024). *Annual report 2023-24*. Department of Agriculture, Cooperation & Farmers Welfare, New Delhi.
3. FAO. (2023). *Community seed banks: Experiences from Ethiopia and Malawi*. Food & Agriculture Organization, Rome.
4. JAU. (2016). *Extension bulletin on groundnut seed production in Saurashtra*. Junagadh Agricultural University, Gujarat.
5. NABARD. (2024). *Innovations transforming landscapes: Odisha case studies*. National Bank for Agriculture & Rural Development, Mumbai.
6. PIB. (2021). Government expands Seed Village Scheme under SMSP. Press Information Bureau release dated 15 Nov 2021.
7. SeedNet. (2025). *Dashboard analytics 2024-25*. Ministry of Agriculture & Farmers Welfare, New Delhi.