



Odisha Pulse Mission



Village Seed Hub



**CONCEPT
OPERATION
BUSINESS PLAN**

Government of Odisha and ICARDA Collaborative Project

What is a Seed (difference between Seed and Grain)

A seed is a mature fertilized plant consisting of an embryo & its food store surrounded by a protective seed coat. In simple term seed is the small hard part of a plant from which new plant grows.

1. A seed is an ovule containing an embryo while a grain is a fusion of the seed coat & the fruit.
2. Typically seeds are planted to grow plants while grains are harvested for food.
3. Grains provide food from the fruit parts while seeds mainly provide food from embryo parts.
4. All seeds can be grains. But all grains cannot be a seed.

Importance of Quality Seed:

Seed is one of the most important inputs that play a vital role in increasing production. Quality seed alone can increase the production to the extent of nearly 20%.

Quality seed availability (and SRR):

One of the main reasons of low productivity of crop is the poor seed replacement rate (SRR). The seed replacement rate for pulse crops in Odisha is very low that is 2-3 % although Government of India stipulated ideal SRR is 33%.

Availability of quality seeds is the main constraint for low production and productivity of pulse crop.

Realizing the importance, Central & State Govt have taken a series of step to boost the production & productivity of pulses through different programme like sub -mission of seed & planting material, NFSM, BGREI, Seed Village Programme & Provision of seed input subsidy.

Present Trend of Seed Availability

Farmers realize that quality seed can increase the productivity of crop. But farmers are unable to get demand quantity of quality seed. It is impossible for the organizing sector (Govt-OSSC & Pvt) to meet the demand of seeds by farmers. It becomes more difficult for them to supply in accessible areas. The availability of farmers preferred variety is great constraint. There is shortage of suitable varieties during abnormal situation. In vulnerable areas farmers tend to dispose of entire produce as a grain & depend on external sources for seed supply in next season. They are facing difficulties in the start of the season. In case of early season drought or rain fall, the need for sowing will be exacerbated the hardship faced by farmers. The formal seed sector that is OSSC, NAC, OUAT & Pvt Seed Grower only contribute less than 10% of pulse seed requirement of farmers. But internal seed sector includes farmers own saved seed & local seed traders contribute more than 90 % of pulse seed requirement of the state.

Necessity of Village Seed Hub

The Village Seed Hub (VSH) advocates village self-sufficiency in production & distribution of quality seeds with social responsibility, mutual trust & utmost transparency of the farmers towards fellow farmers. The VSH helps the farmers in getting the seed in right time at farmers door step at lower price than price fixed by Govt/Pvt Producer/ Market. It reduces their external dependency. Seed production can be taken up well in advance & kept in the village seed hub for use in contingency & normal situation at local level. Participatory village level seed production will be taken up & quality seed so produce will be utilized & spread by farmers to farmers as truthfully level seed.

Establishment of VSH by ICARDA

Realizing the gravity of ground reality as well as supplementing to the state Govt effort to improve quality seed supply to farmers for farmers' preferred varieties, ICARDA (the International Center for Agriculture Research in the Dry Areas) has been implementing the project Odisha Pulse Mission – Variety, Technology and Seed System development of pulses in Odisha under RKVY project during 2016-17 to 2017-18. At present the project is operated in 4 districts of state i.e. Bhadrak, Jajpur, Cuttack and Kendrapada.

List of Village Seed Hubs			
District	Block	Village Seed Hubs	Number of villages
Bhadrak	Tihidi	Belagadia	22 Villages
Cuttack	Kantapada	Sanapatasundarpur	18 Villages
Kendrapada	Marsaghai	Baikunthapur	14 Villages
Jajpur	Jajpur Sadar	Bidyadharpur	12 Villages

Objectives : ICARDA Village Seed Hub

The promotion of model village seed hub is one of the key interventions in this project. The main objectives are:-

- To install village levels systems to engage in quality seed production for use by farmers within and around the villages;
- Farmers themselves are accountable to quality seed production for their choice varieties, seed processing, safe keeping of seed and use the seed in time;
- No complains of delayed supply or poor quality of seed. This is a user owned, certified and managed system.

The village seed hub would produce seed as per planned demand of farmers in village and neighboring village, and make available quality seed at farmers' door step at right time (sowing period). The village will be self-sufficient in quality seed production. The desired varieties shall be multiplied in sufficient quantity to bring adequate rice fallow area under pulses. Timely supply of seed would help farmers to sow pulse crops before depletion of soil moisture from rice fallows where sowing have to be completed within 7-10 days of rice crop harvest.

CONCEPT OF Village Seed Hub

A network of farmer is organized for exchange of seeds, information & ideas. The seeds are supplied to farmers which are cultivated by them in that village or locality. They are aware regarding authentic source. Farmers are cultivating and producing the desired variety of seeds. At the end of production season, the farmers supply the seeds to seed Hub operated by SHG. Seed procured by SHG are given to the farmers in the next season which has multiplying effect. The seed Hub is organized in such a manner that the collection made on sale of seed creates a revolving fund and the community take over the management of it in due course of time.

Intervention to strengthen informal seed supply system such as establishment of Village seed Hub & multiplication of preferred varieties of seed are gaining popularity among NGO & public sector institution. Village Seed Hubs are providing seed security & conserving agro biodiversity

FUNCTION OF Village Seed Hub

Seed Hub is not a store house where seed is kept for distribution or marketing with control condition of humidity & temperature but also it is an important self-help strategy for maintaining genetic diversity in crop and plant species on farm. Farmers through seed Hub develop skills to meet their specific need relating to quality of seed, resistance to pest & diseases.

Women are seed guardian in villages of Odisha. Traditionally in villages of Odisha women role is the preservation of seeds. Women role & their knowledge of seed have been extensive. Therefore women play a vital role in the conservation of diversity at the farm level. The SHG members identify the progressive farmers in the village interested for seed production. They take up seed production of desired varieties as per demand of farmers. The seed produced by grower is procured by SHG. SHG decide the quantity & varieties of seed to be procured. After processing & packing the same are store in the seed hub operated by SHG and marketed to the farmers of villages & local areas.

PROCESS OF Village Seed Hub

SHG should take of the following process for Seed Hub.

1. Formation & management of VSH.
2. Survey for areas for seed production: - The potential farmers & lands having good fertility with irrigation facility are identified for seed production.
3. Capacity building of seed grower: - The seedgrowers & SHG are trained on production of quality seed, storage & distribution twice once before sowing & second after harvest of crop.
4. Arrangement of seed & inputs for seed grower.
5. Taking proper package & practices such as seed rate, right spacing, INM, IPM, Removal of rogues before harvesting, avoiding mixing of different varieties while harvesting & ^ threshing etc.
6. Monitoring of seed production.
7. Seed procurement by SHG from seed grower.
8. Seed storage management.
9. Selling of price of seed by women SHG to farmers for the next season.

SEED PRODUCTION Programme

Seed Production Programme

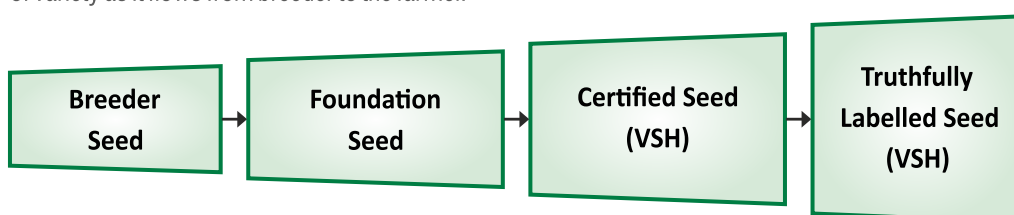
By introduction of new seed development policy (1988-89), the Indian farmers can have access to the best quality of seeds and planting materials available elsewhere in the world. Similarly National Seed Policy 2002 sets a mile stone on seed production, quality assurance, seed distribution, marketing and promotion of domestic private sector seed industry.

SEED ROLLING Programme

For VSH a definitely seed rolling plan will be prepared & implemented in every year in true letter & spirit. VSH should prepare such a plan involving the farmers seed production system under seed village programme. This will strengthen the state seed system. Farmers are trained so scientifically to produce, store and sale the seed at Village Seed Hub. In Village Seed Hub, the VSH should first access the requirement of particular variety of seed. Accordingly production & certified seed should be procured from OUAT/OSSC. At least 3 year production plan has to be prepared in seed rolling plan. The seed multiplication ratio of pulse (SMR) is 1:40.

SEED PRODUCTION System

The seed production system envisages 3 generation namely breeder, foundation, certified seed and provide adequate safe guard for quality assurance in the seed multiplication chain to maintain the purity of variety as it flows from breeder to the farmer.



The breeder seed level should be golden yellow in colour. The tag of foundation seed class shall be white colour. Certified tag shall be blue in colour. Certified seeds must meet standards of seed certification prescribed in Indian minimum seed certification standard 1988. Every year farmer will be motivated to take up seed production duly certified by OSSOPCA and tie up with OSSC for better price of the seed. Farmer and field staff should know minimum knowledge of seed production, certification and seed standard and quality parameter.

Krusak Committee of the said villages will enlist the interested farmers for pulse seed production. They will be called as a registered seed growers. A training programme may be organized for group on seed production, certification, seed standard, quality parameter, post-harvest management and sale of seed. The registered seed growers will chalk out a detail programme on seed production clearly indicating the name of the crop, variety to be grown, area to be grown and class of seed required (B/F/C). They should place indent much more added to the ASPO/SPO with a copy to the AAO/ASCO. The pulse crop is a self-pollinated crop. So the patch size of a particular variety of pulse crop should be 4 hectares and its isolation distance should be 3 meters. Accordingly they should select the patch for each crop of the variety. After receipt of the seeds, they should prepare the land and grow the crop as per the package and practices. They should keep the certified tag of the bag for seed certification. They should contact SCO/ASCO of OSSOPCA in that locality.

SEED CERTIFICATION

The purpose of seed certification is to maintain and make available to the public through certification, high quality seed and propagating material of notified kind and varieties so grown and distributed as to ensure genetic identity and genetic purity.

PHASES OF Seed Certification

Seed grower will apply online to the OSSOPCA with requisite fees Within 10 days of sowing of seeds.

1. Receipt and scrutiny of application
2. Verification of seed source
3. Field inspection at growth period of crop and rouging
4. Issue threshing floor certificate
5. Supervision at post-harvest stage.
6. Seed sampling and analysis at seed testing laboratory.

After receipt of analysis report, if the seed lot meets prescribed standard, the certification agency ensure tagging, scaling and issuance of certificate after which the seed produce can sale it as a seed. After getting production tag they can sale the seed to the OSSC or farmers as the case may be.

There are 2 type of seed production. Farmers may be registered as a seed grower of OSSC. They receive the breeder/foundation/ Certified seeds from OSSC and grow the seed under "MO BIHANA YOJONA" (Seed Village Programme). After certification and harvest of the crop, they take up the seed to the seed processing plant of OSSC. After processing and issuance of certificate tag, OSSC may procure the seed and make payment to the producer.

In another method producer (Farmer) can grow the seeds with proper procedure after procuring F/C seeds. After harvest of the crop they will clean the seeds with the seed grader and cleaner available at the seed hub. For each seed Hub, ICARDA provide one seed grader and 6 number of metallic of storage bins.

SEED STANDARD

After harvest and proper sun drying for 4-5 times of the seeds should be done so that moisture level should be 9 %. The purity of the seed should be 98%. The germination should be 75 % for green gram and black gram and 85 % for Bengal gram. The seed will be store in the village seed Hub.

SEED STORAGE

Initially 2 pucca rooms of minimum size of 12 X 10 feet with proper ventilation, tight fitting door and window and concrete flooring may be selected.

Structure or receptacle should be moisture; rodent, bird and gas proof. Pucca kothi and metal storage bins are suitable storage receptacles. Traditional storage structure can also be improved so as to make it functionally scientific. Wooden pallet/crates should be covered on floor in order to free the seeds direct contact to the floor and moisture. Before storing following control measure should be taken.

A. Step to be taken before storage

1. Remove all debris and refuses from storage structure and godown.
2. Repair all the cracks with cement plasters.
3. Spray 1% malathion 50% EC in the godown and grain bag.
4. Use new grain bag. If not possible disinfect the bag.

B. Steps to be taken after storage

1. Maintain hygienic condition in and around storage.
2. Spray 1% malathion 50% EC at 3-4 weeks interval.
3. If insect infestation is noticed; fumigate the stock with AL-Phosphide at 1 tablet per QTL.
4. Open the door and window daily for aeration except rainy days.
5. Undertake rodent control operation in the godown by trapping, caging and poison baiting with 2% zinc phosphide.
6. For storing pulse seeds, seeds surface coat with edible oil @ 3 ml /kg of seeds after drying or mix Begunia leaf powder or wood ash @ 5%.

Each seed lot of particular variety of pulse crop should be store in a separate row in lot wise. A lot number may be allotted to each grower. Each bag should be marked with tag and lot number.

SALE OF SEED

Before beginning of crop season SHG will fix up the rate of seed taking in to account of procurement rate, all incidental expenses & profit. They will sale the seed accordingly. They should try to sale all seeds. If any seeds is left it will be sold as a grain in order to minimize loss.

INSURANCE OF Seed Godown

Insurance should be made for seed & seed godown.

**BUSINESS PLAN
for First Year**

A model indicative business plan for VSH has been prepared considering local condition, need & demand of seed. The concerned SHG may modify the plan as per their need & demand.

Sl No	Item	Qty (qtl)	Price(Rs/qtl)	Amount(Rs)
1	Green gram			
2	IPM 2-3	2	5575	11150
3	IPM-2-14	2	5575	11150
4	MH 421	2	5575	11150
5	Other	2	5575	11150
6	Total Greengram	8	5575	44600
7	Black gram			
8	PU-31	2	5400	10800
9	PU-40	2	5400	10800
10	Azad-3	2	5400	10800
11	Others	1	5400	5400
12	Total Black gram	7	5400	37800
13	TOTAL Amount needed	15		82400
14	SEED SALE			
15	Selling 15 qtl seeds @Rs 8000/qtl	15	8000	1,20,000
16	Other expenses			
17	Godown rent @ Rs500 per month for 9 months	9	500	4500
18	Transportation & logistic support @Rs10 per qtl	15	10	150
19	Gunny bags @Rs20 per bag (50kg size)	50	20	1000
20	Wages of 1 Nos purchase assistant for 30 days @ Rs250/day	30	250	7500
21	Godown insurance @ Rs 50/month for 9 months	9	50	450
22	Advertisement (LS)	-	-	1000
23	Interest on working capital @3% per annum	-	-	2472
24	Seed license (LS)			1000
25	Total Other expenses(17 to 24)			18072
26	TOTAL COST IN THE 1 st YEAR(25+13)			1,00,472
27	TOTAL REVENUE EARNED IN 1 st YEAR			120000
28	NET PROFIT			19,528

**LONG TERM PLAN
for 5 Years**

	ITEM	2 nd yr	3 rd Yr	4 th Yr	5 th yr
1	Qty of seeds to be procured(qtl)	20	30	50	60
2	Expected Price of seeds(Rs/qtl)	6000	6500	7000	7500
3	Amt. needed(Rs)	1,20,000	1,95,000	3,50,000	4,50,000
4	OTHER EXPENSES				
5	Logistics/Qtl @Rs12, 15,18,20	240	450	900	1200
6	Cost of 50kg size bags@Rs20 per bag (40,60,100,120Nos/yr)	800	1200	2000	2400
7	Wage of 2 pers ons for 30 days@ Rs 250, 260, 275, 300/day	15000	15600	16500	18000
8	Godown Insurance @Rs18/qtl	1800	3600	5400	9000
9	Total other expenses	17840	20850	24800	30600
10	Total amount Needed for the yr(Rs)	1,37,840	2,15,850	3,74,800	4,80,600
11	Interest on working capital @3% per annum	3600	5850	10,500	13,500
12	TOTAL COST	141440	221700	385300	494100
13	Total revenue earned @sale price Rs8500, 9000, 10000, &11000/qtl	170,000	270,000	500,000	660,000
14	NET PROFIT	28,600	48,300	1,14,700	1,65,900

FORMATION OF Management Committee

OPERATIONAL Guideline & Record Keeping

9 members (5 no from women SHG & 4 no from seed producers) may be nominated by general body for monitoring of day today activities of VSH.

Krusak Committee will enlist the interested seed grower of different villages for seed production. They also collect indent from local farmer in advance so that the realistic seed requirement will be accessed and production programme will be taken up accordingly. Village committee will decide nominal hiring charges for storing of seeds for its maintenance, electrical fees, PP measure and watch and ward.

Recording Keeping

Seed Hub should maintain following register for proper accounting.

1. Grower Register :-

Sn.	Farmers Name	Village	Crop	Variety	Area to be Grown	Expected total Production in QTL	Expected seed quantity in QTL	Potential buyer of seeds	Quantity to be purchased	Balance quantity to be store in seed Hub	Contingency plan if not sold

2. Stock Book-One seed production register should be maintained with details of seeds growers. Another seed stock of seed hub may be maintained as follows :-

Sn.	Farmers Name	Village	Crop	Variety	Area to be Grown	Quantity of seeds store in Hub (QTL)	Date of storing	Date of Lifting	Period of storing	Hiring Charges Paid	Signature of farmers	Signature of Hub Custodian

3. Asset or equipment inventory register. All equipment and asset should be entered in this register.

Sn.	Name of the Equipment / Asset	Specification/ Model	Nos.	Cost Rs.	From whom received	OB if any	Total Balance	Remarks	Signature of Hub Custodian

- Cash book – One cash book may be maintained where detail income and expenditure will be reflected.
- Bank Account-One bank A/C will be opened in the nationalized bank in the name of the President and Secretary as decided in the Krusak Committee.
- Meeting Register- One meeting register will be maintained where the proceeding/ resolution will be recorded.
- A sub committee consisting of 5 numbers may be formed for day today monitoring and supervision of the work.
- Training and capacity building- Periodically training on seed production, certification, management of seed hub and record keeping may be organized with help of local AAO/ASPO/ASCO etc. They will also periodically monitore and supervise the work.

All growers& SHG should maintain and manage the seed hub in holistic manner.

THE ORGANIZERS



Government of Odisha (ଓଡ଼ିଶାସରକାର) governs the state of Odisha in the Republic of India. The state government has various well established departments to undertake the integral development of the state. The head of state of Odisha is the Governor, appointed by the President of India on the advice of the Central government, who heads the council of ministers, a judiciary, and a legislative branch. The Chief Minister is the head of the council of the ministers and is vested with most of the executive powers. The State High Court is located in Cuttack. The Legislative Assembly of Odisha is unicameral, consisting of 147 Member of the Legislative Assembly (M.L.A); (for details on various government initiatives, please visit <http://www.odisha.gov.in/portal/default.asp>).



Orissa University of Agriculture and Technology, established in 1962 by Legislature of the State of Odisha through the Orissa University of Agriculture and Technology Act, 1965 (Orissa Act 17 of 1965) establishing and incorporating a university of agriculture and technology for the agricultural education, research and development of the people of the State of Odisha. The vision is for "Education on Agriculture & Technology, Research & Extension". The mandate of the Orissa University of Agriculture and Technology as specified in the University Act is (1) education of the rural people of the state in agriculture and allied disciplines, (2) advancement of research and learning to generate appropriate technology in various branches of agriculture and allied sciences, (3) undertake extension activities, and (4) such other activities as may be required in course of time; (for details, please visit <http://www.ouat.nic.in/>).



The Department of Agriculture and Farmers' Empowerment (Govt. of Odisha) mainly consists of 4 executive wings namely, Directorate of Agriculture, Directorate of Horticulture, Directorate of Soil Conservation and Watershed Mission. Besides these, a number of autonomous bodies like Odisha State Seeds Corporation (O.S.S.C), Odisha Agro Industries Corporation (O.A.I.C.), Agriculture Promotion and Investment Corporation of Odisha Limited (APICOL), Odisha State Seed and Organic Products Certification Agency (OSSOPCA), Institute on Management of Agricultural Extension (IMAGE), Odisha Cashew Development Corporation are also working under the Department. The Directorate of Agriculture is the oldest, which started functioning from 1945 onwards as the Directorate of Development, subsequently renamed as the Directorate of Agriculture and Food Production, Odisha from which the other two Directorates got separated in the years 1977 and 1978 (for details, please visit http://agriodisha.nic.in/Http_public/index.aspx).



ICARDA (International Center for Agricultural Research in the Dry Areas) established in 1977 is one of 15 such centers supported by the CGIAR and mandated to promote agricultural development in the dry areas of developing countries. The center works on the problem-solving needs of resource-poor farmers through development and delivery of new technologies for sustainable growth in agriculture, in a partnership and multi-stakeholder approach, working in 32 countries. Its research and training activities cover crop improvement, water and land management, integrated crop-livestock-rangeland management, and climate change adaptation. The ICARDA genebank holds over 1,55,000 accessions from over 110 countries: traditional varieties, improved germplasm, and a unique sets of wild crop relatives of food legumes such as chickpea, lentil, field pea, and fababean, wheat, barley, oats and other cereals, forage crops, rangeland plants, and wild relatives of each of these species. ICARDA works in strong partnership with national agricultural research systems, government ministries, community linked institutions; (for details, please visit: <http://www.icarda.org/>).



Science for resilient livelihoods in dry areas

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