

Value chain analysis of carrot seed production in Jumla

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ABSTRACT

Carrot seed production is emerging enterprise in Jumla district. The average production of carrot seed in the district is 1100 kg/year with an average productivity of 35-40 kg per ropani⁴ and 388 households involved in the enterprise. The study aimed to analyze the value chain of carrot seed businesses in Jumla that covered value chain mapping and assessment of actors in the chain in terms of production and marketing activities. Many governmental and nongovernmental service providers are involved in promotion of carrot seed production. Problems associated with technology delivery in production and post harvest operation, organization of small producers into groups or cooperatives and their sustenance, infrastructure and market facilities development, training of various actors in the value chain, research and development, vertical networking in the value chain are identified. Congenial policies on production and marketing of carrot seeds are needed to augment income generation in marginalized and poor communities.

INTRODUCTION

Carrot is one of the most important vegetable crops grown all over the country, which is mainly cultivated for fresh consumption. Carrot seed production in Jumla is being popular recently as the temperate climate there with an altitude of 2,200 to 3,000m is considered good for the business. The district annually produces 1100 kg seed with an average productivity of 35-40 kg per ropani. Producer's price for a kilogram of the seed ranged from NRs. 300 to 350 per kg, and the seed production fluctuated year by year in the district (DADO, 2010).

The carrot seed production in Jumla commenced after Community Based Economic Development (CBED) Project. The major seed production pockets are Patmara, Dillichaur, Raralihi and Talium, supported recently by District Agriculture Development Office as well as NGO/INGOs such as MEDEP, SNV and 4S. About 388 farmers are involved in this enterprise. The production of carrot seed in 2009 was around 400 kg; that in 2010 was around 600 kg; and estimated in 2011 was 1000kg (MOAC/SNV, 2008), when the demand made by the seed companies was more than 2 ton. The quality of the seed was also reported to be better.

Despite high potentiality of carrot seed production in Jumla district, the business is subject to diversity of problems. Lack of reliable options replacing chemical pesticides in situation of the district been declared as organic zone and inability of a large number of households to engage in seed production business due to a lack of technical knowledge (majority of seed producers depended on limited number of local resource persons for technology) resulting in a low scale supply of seed to high demand market are some visible problems. The Local resource person themselves are lacking adequate knowledge, and are poorly supported for adequate remuneration, tools and inputs to deliver their services to seed producers efficiently. Carrot seed

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⁴ Approximately 500m²

production and marketing system in the district was analysed through value chain approach to understand major problems.

MATERIALS AND METHODS

Value chain of the commodity was analyzed based on primary data collected through questionnaire survey and focused group discussion. The study was carried out in all 30 VDCs of the district that produced information on the households producing carrot seed, cultivation practices, local service providers, the commodity value chain and problems associated with seed production and marketing. At the district levels DADO technicians, LARFs, input suppliers and seed business communities such as seed collectors, seed processors, traders and exporters were also interviewed to come up with more realistic information on service delivery and value additions. The study was completed in three main stages: 1: desk study which included collection and review of secondary information, interactions with stakeholders and preparation and finalization of survey checklists 2: field works involving walkthrough by all professionals and 3: report preparation that involved interactive discussions within team and data analysis.

RESULT AND DISCUSSION

The study revealed that out of 16948 households in Jumla only 388 households were involved in this enterprise (DADO, 2010). Service providers involved in carrot seed production promotion as revealed by the survey are Surya Social Service Society (that provided financial support for technical service), Agro-vet/JAPEC (for seed); CECI/CBED (for technical training), NARC/ Rajikot (for foundation seed), LI-BIRD (for agri-inputs), Micro Enterprise Development Program (for inputs and technical trainings) and DADO (for trainings).

At present, a kind of bye back guarantee is provided by SEAN to the carrot seed producing farmers through a tripartite agreement between SEAN, Himalayan Multipurpose Cooperative and the seed producers' group. The price negotiation is between these three parties facilitated by an independent organization like 4S. The price for the year 2010 was around Rs.350-380/kg seed (table 1). The list of vegetable seed demanded by SEAN for 2010 is presented in Table 2 (SEAN, 2010).

Table 1: The SEAN seed demand and contract price for various vegetable seeds.

S.N	Vegetable seed	Production contract (kg)	Contract Price (NRs)/kg
1	Carrot	2400	290
2	Radish	2600	200
3	Broad Leaf Mustard	450	200
4	Swiss chard	350	125
5	Coriander	700	125
	Total	6500	

Constraints faced by the stakeholders

Wholeseller located in Nepaljung and Surkhet are main purchasers of carrot seed produced in Jumla. They imported seed equipments and pesticides also to supply to the seed producers via DADO, NGOs and local agrovets. The wholesalers as well as the local agrovets who supplied seeds to the seed producers are not generally supported by seed processors and watched by seed quality control services in the country. Farmers usually blame the local input suppliers for supplying poor quality seeds at

high prices, who themselves receive poor quality seeds from wholesalers. The seeds are observed to have poor germination, vigour & viability ultimately resulting in poor productivity. Local input suppliers are also not free from constraints. They are having poor technical knowledge hence unable to provide right advice to the farmers for improving seed quality and production. They are lacking simple seed testing system before sale, and also not interested on field test demonstrations in farmers field. As a constraint to local input sellers, they are not allowed to sell inorganic inputs since DDC declared Jumla as an organic districts after its 14th council meeting, and they have poor technical knowledge about organic inputs to deliver alternative options to seed producers thus ultimately affecting the seed business run by small number of scattered farmers.

The seed growers are generally unaware of market demands for carrot seed. They have poor communication with wholesalers, retailers and out district traders. They do not have mechanical tools for seed cleaning and grading to improve its quality and technical knowledge regarding seed crop management including soil fertility and crop pests and diseases to enhance seed production. Farmers are receiving low prices due to selling of unclean and non-graded seeds. They are generally reluctant of long gestation period of seed crop. In case of carrot seed production, the focus group discussion with the farmers revealed that the SEAN's (the sole buyer) demand for carrot seed is still unmet. The demand is around 3-4 t/year, while the seed production at present is around 7-8 quintal. According to the farmers, production cost per *ropani* is Rs.7400 (1 ha=19.6 *ropani*), while the gross income is around Rs.17,500. Price is

Functions	Actors	Supporters/ Enablers
Consume	Farmer/producers	
Retail	Agrovets - Ktm, NPJ, SKT	
Wholesale	SEAN, Ktm	
Collection	Himali Cooperative	DADO, WVIN, MEDEP, 4S, JAPEC
Production	Farmers (390)	DADO, MEDEP, 4S, WVIN,
Input supply	Agrovet, Cooperatives	DADO, MEDEP, 4S, WVIN, SNV, JAPEC

determined by negotiation between Himalayan cooperative, producer group and SEAN; Surya Samajik Sewa Sanstha (4S) is facilitating the negotiation. Farmers supply their product to the district cooperative, and the cooperative in turn supplies the seed to SEAN as per the tripartite MoU.

Fig.1: Value chain mapping of carrot seed production in Jumla

Cultivation practices

Majority of the farmers have been cultivating New Coroda variety for carrot seed with 2-3 farmers found cultivating Nantes and Forto variety. The farmers have been receiving foundation seed for seed production from 4S, JAPEC and NARC Rajikot. The agro-vets available at the district headquarter have also been involved in input supply to some extent. The Himalayan Multipurpose Cooperative Ltd has also been playing vital role in input supply, technical collaboration with stakeholders and supply of the seed product to SEAN. Almost every seed entrepreneurs have been using local FYM in their field. Majority of the farmers reported that irrigation is one of the major

constraints for carrot seed enterprise. Very few farmers have got provision of canal irrigation. Because of being an organic district, farmers reported that they were using cattle urine for controlling insect pests.

Marketing of carrot seed

Value Chain mapping

The survey shows that very small number of actors is involved from input supply to final product purchase. The SEAN is the final purchaser for the carrot seed produced in Jumla district. At present various non-governmental organizations like MEDEP, 4S, SNV and Horticulture Research Center, Rajkot are providing foundation seed to the farmers. The Himalayan Agriculture Cooperative is intermediating seed supply from farmers to SEAN. A pictorial representation of value chain actors in carrot seed enterprise is given in Fig.1. The farmers reported that untimely release of fund by SEAN has constraints seed production expansion, and lack of grading and packaging materials resulting in seed quality deterioration. Since major problem in carrot seed production is rotting of carrot root during storage in pits, it is better to construct 3 communal collection centers (Sinjha, Patmara and Tatopani) where carrot roots can be stored and transplanted in summer season. District Agriculture Office should play major role in seed certification process as well.

RECOMMENDATION AND CONCLUSION

The number of farmers involved in carrot seed production is very small. The demand for the carrot seed is still unmet by these farmers. In the coming days, the number of farmers in this enterprise must be increased in order to meet the demand. Households producing carrot seed can be increased to 675 in next 4 years to meet the demand set forth by SEAN (table 2). The study revealed that only 16 dalit households are involved in carrot seed enterprise. The participation by dalit households should be increased in this enterprise.

Table 3: Projection of carrot seed entrepreneurs for next 5 years¹

Potentials VDCs	Base year		Projection of potential entrepreneurs for next 4 years											
	2011		2012			2013			2014			2015		
	No	Area	No	Area	Prod	No	Area	Prod	No	Area	Prod	No	Area	Prod
Mahat	5	1	10	2	50	15	4	100	20	7	210	20	7.5	225
Talium	45	4	50	10	250	65	16	400	70	24	720	70	25	750
Tatopani	9	1.2	20	4	100	35	9	225	40	14	420	40	14.5	435
Kudari	6	1	15	3	75	25	6	150	30	10	300	30	11	330
Malikathata	10	2	20	4	100	30	8	200	40	14	420	40	14.5	435
Raralihi	50	6	60	12	300	70	18	450	80	28	840	80	29	870
Dhapa	120	10	130	26	650	140	35	875	150	52	1560	150	53	1590
Patmara	80	7	100	20	500	115	29	725	120	42	1260	120	43	1290
Dillichaur	45	8	65	13	325	80	20	500	85	29	870	85	30	900
Narakot	2	0.5	20	4	100	35	9	225	40	14	420	40	15	525
Total	372	40.7	490	98	2450	610	154	3850	675	234	7020	675	243	7350

AT present 4-5 VDCs are found to engage in the enterprise in commercial scale. There is a scope to increase entrepreneurs in some major VDCs such as Mahat,

¹ Area in ropani (approx. 500m² production in kg)

Talium, Tatopani, Kudari, Malikathata, Raralihi, Dhapa, Patmara, Dillichaur and Narakotlike (table 2).

Construction of communal carrot root storage especially in Sinjha, Patmara and Tatopani VDCs is important for major problem due to carrot root rot, where carrot roots can be stored and transplanted in summer season. District Agriculture Development Office should play major role in promoting bagging, packaging, truthful labeling and seed certification. Sustenance of seed producers' groups/ cooperatives, marketing infrastructure improvement for seed business such as market and storage and training for major actors such as farmers and input suppliers are felt needs of carrot seed business promotion in Juma.

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