

COMMERCIAL VEGETABLE SEED PRODUCTION

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ABSTRACT

Commercially vegetable seed production in Nepal started in seventies and now Nepal produces approximately 400 tons of vegetable seeds. Government NARC farms concentrate on nucleus and foundation seeds. Private sector produces more than 90 % seeds. Seed production pockets are developed in the common area of horticultural farms, scattered through out the country but western districts are more suitable for seed production than eastern due to climatic reasons. The data about country's seed requirements has been differently reported and production varies from year to year due to erratic demand and marketing.

Research for continuous supply of superior open pollinated varieties and hybrid seed production should be done. Private sector should develop custom hybrid seed production in collaboration with foreign seed companies. Measures should be taken to control the production and distribution of quality seed by field inspection, laboratory testing of seed and checking the truthful labelling of seeds. Contract system should be legalised. For export quality as well as varieties should be properly selected. Seed processing facilities should be developed or facilities made available in seed production pockets.

INTRODUCTION

Many types of vegetable crops are grown in Nepal. Some are indigenous while others are of recent introduction in the country. Seeds of more than 30 vegetable crops comprising 72 varieties are being produced in the country. Although organised vegetable seed production programme started after the establishment of government horticultural farms. Vegetable growers since ancient time, used to produce their own seed by leaving a few plants for seeding. In 1940, an experimental farm at Tahachal, Kathmandu was established from where limited quantities of vegetable seeds used to be produced and sold through "Beej Bhandar" (Seed sales Department) at Judha Sadak, Kathmandu. During the sixties, many horticultural farms at different agroclimatic region of the country were established and seeds sold to grower through AIC or ADO office.

Realising the importance of vegetable development in the country. Vegetable Development Division was established in 1972. The division coordinated the vegetable seed production programme throughout the country.

In early seventies, commercial seed production on private sector with technical support from government farms was started. It was one ton production in early seventy and now it has reached more than 400 tons.

Vegetable seed have been included by Agriculture Perspective Plan (1994) under eight high value commodities prioritised for hills and mountains of Nepal.

To boost up the vegetable seed industry in the country. Seed Entrepreneurs Association on Nepal (SEAN) a private sector enterprise was formed in 1989 and registered with government in 1992. Today private sector produces more than 90 % of the vegetable seeds produced in the country. Government sector provides the

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doundation seed for the use of private sector. It is hoped that some private sector will gradually start producing their own foundation seed.

Present status

A. Public sector: Although public sector horticultural farms have been producing vegetable seeds since early sixties, their contribution is mostly for nucleus and foundation seed (and to a certain extent improved seeds). However, in the recent years the total seed production, especially improved seed, has declined due to various reasons (Table 1.).

Table 1. - Vegetable seed production by government sector farms in 1996-97

S N.	Farms and Stations	Seed Standard		
		Nucleus	Foundation ----(in Kg.)----	Improved
1	Vegetable Seed Production Centre, Khumaltar	5	1323	223
2	VSPC, Rukum	15	1167	-
3	VSPC Dadeldhura	4	79	533
4	Horticulture Centre, Sarlahi	-	3848	-
5	Horticulture Centre, Trisuli	-	365	102
6	Horticulture Centre, Palpa	-	418	-
7	Horticulture Centre, Dolkha	-	.25	-
8	Horticulture Centre, Sindhuli	-	17.3	183.3
9	Horticulture Centre, Solkhumbhu	-	53	-
10	Horticulture Centre, Panchkhal	-	110	-
11	Horticulture Centre, Daman	-	315	-
12	Horticulture Centre, Marpha	2	142.5	147.4
13	Horticulture Centre, Dolpa	-	47.0	81.0
14	Horticulture Research Station, Pokhara	-	325.5	-
15	Lumle Agriculture Centre	-	784.3	-
16	Agriculture Research Centre, Dasrathpur	-	-	257.5
17	Agriculture Research Centre, Nepalganj	-	595	-
18	Agriculture Tarharae Research Centre,	.270	110	-
19	Agriculture Research Centre, Dhankuta		294	195
	Total			

The government farms will continue to produce nucleus and foundation seed so long as private sector does not start producing their own foundation seeds. However, the qualities and varieties of foundation seeds produced by horticultural farms are not adequate for seed growers use. It is estimated that out of 72 vegetable varieties produced, the government sector can produce adequate foundation seed for us varieties only (47 varieties of vegetable crops are either inadequately produced or not produced in government farms at all). (Budhokietal 1994). Therefore it is essential for the government farms to plan in such a way that they can meet, to the large extent, the seed growers requirement of foundation seed.

B. PRIVATE SECTOR : The existing vegetable seed production pockets are shown in the map. It is evident from the map that most of the vegetable seed production pockets developed in the command area of government horticultural farms. The total commercial vegetable seed production in 1996-97 is estimated to be 441 tons (VDD 1997). The production pockets and the types of crops grown as are presented in table 2.

Table 2.- Major vegetable crops and their seed production pockets

S.N.	Command area and Districts	Major Vegetables Seed Production
1.	PAC/HRS Dhankuta, Dhankuta, Terathum, Hojpur, Sankhuwasabha, Taplejung, Panchthar and Ilam	Radish, Broad leaf mustard, Broccoli, Beans, Peas, Turnip, Cauliflower, Cress etc.
2.	Seed Production Centre, (Musikot, Rukum, Salyan, Rolpa, Phuthan, Dang)	Radish, Onion, Zucchini, Broad leaf Mustard, Cauliflower, Beans, Carrot, Cress, Cabbage, Okra etc.
3.	Lumle Agriculture Centre, (Parbat, Myagdi, Baglung)	Radish, Cucumber, Zucchini, Chinese Cabbage, Japanese green, Broad leaf Mustard, Cabbage etc.
4.	Vegetable Seed Production, Khumaltar and Horticulture Farm Trisuli (Nuwakot, Bhakhatpur)	Beans, Radish, Cauliflower, Broad leaf mustard, cress, Pea etc.
5.	Horticulture Centre, Sarlahi (Sarlahi, Rauthat, Sindhuli, mahotari, Saptari)	Tomato, Brinjal, Okra, Asparagus, bean, Radish, Cucumber, Peas, Chillies etc.
6.	Horticulture Farm Marpha (Mustang)	Cabbage, Broad leaf Mustard, Radish, Carrot Swisschard etc
7.	Horticulture Farm Dolpa (Dolpa)	Cauliflower (snowball), Carrot (New Kuroda), Broad leaf Mustard (Marpha Chaudapal)
8.	Horticulture Farm Panchkhal (Khabre)	Onion, Tomato, Radish, Cauliflower etc
9.	Vegetable Seed Production Centre, (Dadeldhura)	Cauliflower, Beans, Capsicon, Radish, Mustard Broad leaf etc.
10.	Horticulture Farm Jumla (Jumla, Kalikot)	Carrot, Cabbage, Mustard broad leaf, Radish etc

The crop wise production of vegetable seeds (Table 3) in Nepal gives some indication of crops being used for seed and need to diversify them.

Table 3. - Crop wise seed production of major vegetables

S.No.	Crop	Year	
		1994/95	1996/97
(production in mt.)			
1.	Radish	159.6	93.367
2.	Mustard Broad Leaf	10.5	4.572
3.	Turnip		0.583
4.	Chinese Cabbage		0.360
5.	Peas	34.6	3.590
6.	Cress		0.747
7.	Coriander		0.055
8.	Beans	18.8	19.576
9.	Carrot	2.0	0.036
10.	Cucumber	2.3	0.100
11.	Tomato	3.5	0.050
12.	Onion	34.6	9.110
13.	Japanese Green		0.758
14.	Okra	44.2	6.000
15.	Cauliflower	8.3	2.898
16.	Zucchini	2.0	0.150
17.	Broad bean		0.022
18.	Brinjal	3.0	0.050
19.	Chilli	2.2	0.100
20.	Bottle gourd	2.5	0.040
21.	Asparfas bean	17.8	0.060
22.	Others		2.990
	Total	337.8	441.00

Source : Vegetable Development Division

The government and private sector is identifying new production pockets for different vegetable crops. Generally western hilly and mountainous region is more suitable for warm temperate to temperate types of vegetable seeds than the eastern region due to late rains. Terai is suitable for production of tropical types of vegetable seeds eg. Okra, Cucumber, asparagus, bean etc.

Hilly and mountainous areas of western and farwestern region hill needs to be developed for large scale seed production. These are pockets in western region eg. Jumla, Humla, Dolpa etc where temperate types of vegetable seeds are produced.

APPROACH THE PRESENT NEED

The government estimate of total area under vegetable crops is approximately 140000 ha, this figure includes area covered under commercial crop as well as under kitchen garden. As a matter of fact, there is steady increase in area covered by commercial crop especially the pockets connected by towns and cities by good transportation. The seed requirement of the country has been variously reported by different sources. Munankami and Neupane (1994) have estimated the seed requirement as 854 tons while Agriculture Project Services Centre (APROSC) has given seed requirement as 1165 tons. It seems that the production in the country does not meet the requirement. Firstly the quantity is not adequate, secondly the varieties of seed required are not produced in the country. For example, the production of certain seeds such as radish, rayo and cauliflower (far Kathmandu) are high than required, while other crops or even a particular variety of a crop needed by farmers is not produced in the country. In the recent year, there has been more demands for hybrid seeds but Nepal does not produce hybrid seed at all (except small quantity of chnese cabbage).

RESEARCH

To make the seed industry viable, among other things, research is vital. Nepal produces vegetable seeds of open pollinated varieties only that too most of the varieties have become old. This is need for new varieties with specific requirements eg. varieties for off season production, higher yielding varieties, disease resistant varieties, processing type varieties etc. Researches in the following live is needed.

(1) **Introduction of new varieties** : New open pollinated varieties should continue to be introduced, tested in different agrilclimate region and released after they fulfil the specific requirements. National Agriculture Research Council (NARC) in collaboration with Department of Agriculture (VDD, Horticultural farms) and Institute of Agriculture and Animal Science (IAAS) should taken lead and responsibility for this.

(2) **Custom production of hybrid seed** : Hybrid seed should be produce in collaboration with foreign seed companies. This will be quicker to produce hybrid seed in the country. Inquiries are coming from foreign seed companies about possibilities of such custom hybrid and promotion in Nepal. SEAN and Conegued Ministry should talk had in this direction.

(3) **Breeding Programme** : For the long farm vegetable development, NARC should develop infrastructure and manpower for a long term breeding programme. Every country should have own elite varieties developed through breeding programme otherwise the seed industry of vegetable seeds are being imported and sole in the

country, thus reducing the transfer of Nepali seeds. Therefore it is high time government and the research council think seriously in this direction

MAJOR PROBLEMS FOR COMMERCIAL VEGETABLE SEED PRODUCTION

There are certain problems which need tacking before the seed industry become viable and flourish. The seed growths, seed entrepreneur and the confuses feel the following problems;

1) Quality Control : For sustainable seed industry quality seed production and distribution is a must. Although it is an ongoing process, Nepal produced seed should meet the minimum field and seed standards. For fruitful labelled seed it should also meet fruitful standards. Seed bylaws has recently been approved and it is hoped that in near future seed regulations will be optional. According to Nepal Seed Act fruitful labelling of Nepal produced seed is compulsory .

These should be regular field inspection by concerned agency and seed inspectors should check the quality of packaged or contain seeds by sending them to appointed seed testing laboratories and if the seed do not meet the standards, the trader/dealer in liable to penalty.

2) Foundation Seed Production : At the moment the public sector farm, can not meet the full requirements of foundation seeds both quantity wise as well as crop variety wise. Not only public sector farms should manage it properly but private should also start their own foundation seed production of certain crop varieties. Nepal Seed Act does not prohibit private sector to produce their foundation seeds, they have to develop their facilities to produce their nucleus and foundation seed.

3) Contract System : The contract system between seed entrepreneurs and seed growers is faulty and inadequate. For example in 1994/95, out of 195 tons of vegetable seeds contracted only 168 tons was collected. Fault lies with both parties seed growers as well as with seed Trader. The contract system should have legal binding on both parts.

4) Seed Import : These is formal as well as informal import of seeds especially in the border towns of terai. As a result, these is less demand of domestically produced seeds. Nepal produced seeds should be given protection otherwise we can't complete with Indian seeds. This should also be considered while planning the seed industry development programme.

5) Data and Information : These is no reliable information regarding actual requirement of different vegetable seeds. Development of dealership system through out the country, may provide feed back to SEAN or other seed entrepreneurs regarding actual requirements of seeds

EXPORT OF SEED

Nepal produced seeds have experienced set back in export. it is important that Nepal not only maintain the high standards of seeds quality but is in a position to provide those crops and varieties which the importing country's consumption want. For that we should produce seeds of those crops and varieties, do some initial investigation and export to concerned country only those seed which they require.

SEED PROCESSING

The process encompassing harvesting to marketing is processing of seeds. Processing improves the quality of seed by removing contamination and impurities, size grading the seed, bringing seed moisture to required level and proper packaging.

Although these are seed processing plants, they are mostly based on wheat seed processing. The following processing plants are based in vegetable seed processing

- a) Vegetable Seed Production Centre, Khumaltar
- b) AIC, Processing Plant, Kathmandu
- c) Lumle Agriculture Centre, SEAN
- d) Pakhribas, SEAN/KOSEPAN
- e) Nepal Seed Co., Bharatpur
- f) Horticulture Centre, Sarlahi

SEAN operated processing plants at Pakhribas and Lumle are utilised and are close to vegetable production pockets. but processing plants are used for public sector production and the private sector has limited access to them. bulk of the vegetable seeds production in Rapti zone and other pockets do not have access to processing. They depend entirely on manual processing.

REFERENCES

- Budhathoki, K and S.K. Regmi, 1994. The production system in seed industry : Policy needs for its expansion.
- Shrestha, T.N. and R.K. Raut, 1996. Vegetable Seed Production in Nepal
- Munankami, R.B. and N. Neupane, 1994. The Marketing seed in Nepal, Policy needs for its expansion through the private sector investment.
- VDD - Sector involvement
Various Report by Vegetable Development Division.