



Joint Inspection Team Review of National Horticulture Mission and other Central Schemes of Horticulture Supported programmes for Punjab State (November-December, 2011)



Joint Inspection Team Review of National Horticulture Mission and other Central Schemes of Horticulture Supported programmes for Punjab State for the year 2011.

The Joint Inspection Team (JIT) to visit and monitor the centrally sponsored programmes for Horticulture Development comprises following members:

S.No	Name	Designation & Department
1	Prabhat Saxena	Chief Consultant(PHM), NHM Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi
2	Dr. Yog Raj Chanana	Ex- Director of Horticulture, PAU, Ludhiana.
3	Dr. Rakesh Sharda (in place of Dr. K.G. Singh, S.R.Engineer)	Extension Specialist (S & WE) Principal Investigator, PFDC, Department of Soil & Water Engineering, PAU, Ludhiana.

JIT Visit Schedule:

JIT interacted with concerned officials of Punjab Government at district level and also visited the Farmer's fields to assess the progress of NHM/other activities supported from Govt. of India by the JIT Members as per following schedule:

Date	JIT Activities
28 th November, 2011	<ul style="list-style-type: none"> • Visited some field activities of NHM assisted units at PAU & having meeting in the Conference Hall, Farmers' Service Centre PAU, Ludhiana with Addl. Director of Extension Education (DEE) ; Addl. Director of Research; Head, Department of Micropology; Associate Professor, Department of Agronomy; Head, Department of Vegetable Crops; Associate Director of Research, Senior Plant Pathologist, Scientist (Veg. Seeds); Executive Engineer (C-I); Prof of Entomology; Senior. Extension Specialist (DEE) & HDO, Ludhiana. • Also visited Gill Agro Cold Storage, Bondli, Semrala, Ludhiana. and hold a meeting of owners of NHM assisted Cold Storages of district Ludhiana. • Visited Banana Ripening Unit of Punjab Agritech Processing Limited, Garga, Samrala, Ludhiana.
29 th November, 2011	<ul style="list-style-type: none"> • Meeting in the office of DDH (Nodal Officer, Vegetable Initiatives in Urban Clusters), Ludhiana with the Consultants M/s ACTECH Agro Pvt. Ltd. Noida (Mr. Arvind Parhouri, Director-projects) & International Traceability Systems Limited, New Delhi (Dr. J.S. Kanwar, Advisor Organic Agriculture & Sh. V.P. Paul, Project Manager) doing Baseline Survey, Registering FIG & FPO for undertaking activities under Vegetable Initiatives programme in

	<p>Ludhiana, Fatehgarh Sahib, Sangrur, Patiala & Jalandhar districts.</p> <ul style="list-style-type: none"> • Visited field activities of NHM (Vermi Compost Unit, Green House, Low Tunnel Vegetable Cultivation of Mr. Gurbir Singh) at village Bhorsi, Rajputana, District Amritsar. • Meeting with the Cold storage owners of M/s Marwaha cold storage & M/s. S. Gujjar Singh cold storage at Marwaha cold storage, Amritsar. • Visited Perishable Cargo Centre (PCC) at Amritsar Airport established by Punjab Agri Export Corporation Ltd. (PAGREXCO) Chandigarh
30 th November, 2011	<ul style="list-style-type: none"> • Visited field activities of NHM and Protected cultivation Drip Irrigation unit with Soluble foliar sprays system at Bhikha nagal Village, Mallian Road, Kartarpur, Jalandhar. • Visited Surrender Cold storage and Bhatti Tissue Tech. Ltd. At village Alipur. Jalandhar. • Meeting with cold storage owners assisted under NHM Scheme in the district of Jalandhar at Maharaja Cold Storage Ltd. & visited Dahya Cold storage.
1 st December, 2011	<ul style="list-style-type: none"> • Visited NHM assisted Kartar cold storage • Visited KVK, Samrala, Ludhiana • Visited C.A. Vegefruit Stores District Mohali, Punjab (under construction) • Wrap-up meeting with Mission Director, SHM, Punjab at Chandigarh

General Observations and Suggestions of JIT:

JIT has recorded following common observations on implementation of centrally sponsored Horticulture development programmes in the visited districts of Ludhiana, Amritsar and Jalandhar in Punjab during 28th November, 2011 to 1st December, 2011:

1. The opinion of the JIT is that the overall implementation of the NHM scheme in the State is satisfactory. The horticulture area which was 2.05 lakh ha in 2005-06, went up to 2.69 lakh ha in 2010-11 and the production increased from 33.80 lakh MT to 51.48 Lakh MT during the same period registering an **increase of about 31% and 52% in the area sown and production respectively.**
2. At PAU Ludhiana, NHM has assisted projects of
 - (a) Bio control Lab.
 - (b) Public Health Clinic,
 - (c) Disease Forecasting unit and
 - (d) Leaf tissue analysis Lab.

3. All of these projects have been working and given prescribed utilization certificate. Disease forecasting unit scope has been enlarged by connecting it with mobile phone services, newspapers T.V. & radio etc. The project has helped in reducing the use of fungicides and increasing income of the farmers through yield increase. It is also suggested to establish another Disease forecasting unit at their regional station, Abohar for other crops like kinnow.

e) Mushroom project, PAU has purchased the equipments for preparing ready to use compost.

Department of Extension Education, PAU has conducted trainings off-campus and to on campus training programmes during 2011-12. Vegetable seed production project, PAU has also helped in increasing seed production and the funds provided under NHM have been fully utilized funds provided for constructing 14 poly houses at KVKs on an area 500sq. yards each are less and **require more funds @ Rs 3 Lakh/ KVK making a total requirement of Rs 42 Lakh.**

4. Under National Vegetable Initiatives in Urban Clusters, M/s Actech Agro Pvt. Ltd., Noida and M/s International Traceability Systems Ltd., New Delhi have been engaged as consultants by SFAC and entrusted the work of "Base line survey" and enrollment of "Farmer Interest Group (FIG)". Consultants have been completed the Base Line Survey and identified FIGs in the district of Fatehgarh, Sangrur, Ludhiana, Patiala and Jullandhar. Work for registering FPO will start soon. Work of Market aggregators is still to be started. In case funds are made available to SHM from State Govt. then work can be expedited. Price fixation for vegetable under the system is not clear to Nodal officer (DDH) Ludhiana and Consultants. **This needs further discussions with the identified FPO's and Market aggregators by the Nodal officer and Mission Director, SHM.**
5. Cold storages at Ludhiana, Amritsar and Jullandhar assisted under NHM after 1/4/2010 have adopted new technology as per prescribed technical standards for cold storages (without pre-cooling). Performance data have been collected and discussions were held with the cold storage owners/managers on following aspects:-
 - a) Electric consumption in cold storages with old and new technology.
 - b) Quality of stored commodity.
 - c) Weight loss of stored commodity, and
 - d) Training of Managers and Plant operators.

Cold storage using new technology with CO₂ scrubbers has better quality and less weight loss of stored potatoes.

Suggested to have:

- a) **Air circulation:** Minimum 50 CFM/MT of potato (85 CMH/MT of potato) during the loading and pull-down period. However, during the holding period fan power is optimized by fan speed reduced to almost 70% by VFD control (which will reduce fan motor power consumption to 34%) and thereafter automatic control will maintain temperature variation within each chamber at less than $\pm 1^{\circ}\text{C}$.
- b) **Ventilation requirements in cold storage:** it may range between 2 to 6 air changes per day to maintain CO_2 less than 4000 ppm. It is recommended to opt for mechanical CO_2 extractor with energy recovery system. It is a much better option than the present practice of opening the cold stores doors & hatch windows to ventilate and remove the CO_2 build-up as the later practice results in loss of energy, inability to maintain temperature variation range of $\pm 1^{\circ}\text{C}$, wetting of product leading to product loss.
- c) **Fogger type external humidification system** with 2 to 10 micron particles with automatic regulation.
- d) **Installation of PLC system** to record the critical storage conditions of the stored commodity.

Cold storage owners were advised to undertake **energy audit** by Competent Engineers/Agencies to get the report of electricity consumption of each unit. In case electricity consumption is not within the acceptable limits of designed consumption levels, remedial measures shall be adopted as suggested above.

It was also gathered that farmers expected good potato crop during 2011-12 season.

- 6. The fruit ripening chambers assisted under NHM should be farmer friendly. SHM should evolve a **mechanism to fix the price for the produce** to be placed for ripening by the farmers in these ripening chambers.
- 7. Although visited vermi-compost unit was found functional, but in the construction of vermin - compost pits recommended technical standards are not followed. There is need to follow recommended **technical standard in construction of vermi-compost units and training of personnel proper maintenance**.
- 8. Poly house (s) with drip irrigation is being constructed in village and needs uninterrupted power supply system. Modern automatic drip irrigation system are also installing **Fertikit** which can be used for soluble fertilizer etc.,

NHM may also have suitable cost norms for

- a) Water soluble spray system.
- b) D.G Set and/or U.P.S. system for running drip irrigation system and poly houses.

c) Fencing and fire fighting equipments

9. Confederation of potato seed farmers (POSCON) have been registered as a non-government voluntary organization with office of Jalandhar. 170 seed potato growers are member of POSCON and they collectively cultivated 22500 acres and produced around 1.5 lakh Mt of potato seed by adopting modern technique for soil testing and micro-nutrient estimation members have collectively entered into an agreement for introduction of new technology on logistics, data logging on temperature, humidity, and CO₂ concentration with M/s All round, the Netherlands. POSCON, members are expected to produce and market between 50% to 60% seed requirement of India
10. Punjab Agri Export Corporation Ltd. Chandigarh (PAGREXCO) had set up a Perishable Cargo Centre (PCC) in the year in 2006 which started operations from May 1, 2006, it was set up at a cost of Rs. 1.96 crores from which grant was received from APEDA, (Rs. 64.00 lacs) Rural Development Board (Punjab) (Rs. 64.00 lacs) and National Horticulture Mission (NHM) (Rs. 39.90 lacs) and the rest from PAGREXCO..

The PCC started functioning in the year 2005-06. The direct flights from International Airport Amritsar to London were discontinued during October 2010 and due to this, no Export was carried out from the last one year through this centre. The flight has been restored again by the Government of India during October, 2011 and work of export was required to be started. But due to certain short comings like leakage from the roof, broken floor, 2 air conditioners & x-ray machines were out of order, electricity fitting repair etc. it was not possible to operate this Cargo Centre without requisite repair.

The Cargo Centre was got repaired by PAGREXCO with the total cost of Rs. 5.00 lac. (approx) before the restart of flight and was put in to operation with effect from 14.10.2011. Since the restart of flights i.e. 14.10.2011 the export like baby corn, snow peas, coriander and assorted vegetables taken place to London (U.K.) through this cargo center. PAGREXCO have also engaged a consultant for establishing a new PCC at other location allotted to them by AAI. **Suggested to utilize the existing facility optimally by having a platform/station for packaging of Doly.**

11. C.A. Vegefruit stores Mohali is under construction with 28 chambers (12 nos x 210 Mt ; 8 nos x 230 MT and 8 nos x 120 MT) for storage of horticulture produce like apples, pears and other fruits and vegetables etc. promoters have been using the prescribed Technical standards-III and **expected to complete the project before ensuing apple season of 2012.**
12. In a wrap meeting with Mission Director, SHM, observations of the field visit were discussed and suggestions were given to implement them. The physical and

financial progress of Action Plan 2011-12. Copy enclosed at **Annexure 1** was also reviewed and the details are as under:-

Progress Report under NHM Upto October 2011.

S. No	Component	Target	Pattern of Assistance	Achievement	
				Physical	Financial (Rs in Lac)
1	New plantation (ha)/High-density	2257	50-75% of 0.60 & 0.35	344	54.53
2	Setting up of New T.C. unit (Pvt. Sector)	2	50-10%	1	50.00
3	Maintenance of Orchards (ha.) First/Second Installment.	5730	20% of total estimated cost	1750	95.89
4	Banana TC (unit. ha)	103	75% i.e. Rs.31201/- per ha.	11	3.41
5	Floriculture	150	50%	142	63.60
6	Integrated Mushroom Unit (No.0 (Pvt.))	1	50%	1	25.00
7	Compost making unit. (Pvt.)	2	do	1	10
8	Rejuvenation of Old Orchards (ha.) (2010-11)	1200	50% i.e. Rs. 15000/- per ha.	1991	298.71
9	Community water tank (no.) individual water harvesting	50	100% i.e. Rs.10.00 lac	54	403.26
10	Protected cultivation (Green House, Shade Net) (ha.)		50%		
	i) Green house (hac. all types)	7.96	do	5.03	242.03
	ii) Plastic mulching (hac.)	217	do		
	iii) Shade net (hac.)	2.69	do	0.05	1.5
	iv) Plastic Tunnels (hac.)	60	do	31.8	47.7
	v) Cost of planting material of high value (flower & vegetable) for poly house- Anti Hale/Anti Bird	4.75	do	1.6	15.67
11	Adoption & certification of organic farming (ha.)	Previous year	50% i.e. Rs. 10000/ hac.	1000	40.00
12	Decease forecasting unit	2		1	4.00
13	Leaf tissue nutrient analysis	1	Project based	1	9.75
14	a) HDPE vermibed	685	50% i.e. Rs. 5000/bed	20	1.00
	b) Vermi compost Unit (No.)	150	Rs. 30000/unit	38	11.4

15	Pollination through Bee keeping hives. (no.)	4000	Rs. 800/unit	1140	14.54
	Pollination through Bee keeping colonies. (No.)	5000	Rs.700/unit	1140	14.86
	Equipments for Bee keeping	134	50%	14	0.95
16	Horticulture mechanization				
	a) Power operated machine 17500/set	597	do	214	16.69
	b) Power machine (up to 20 BHP) @ 60000/set	308	do	87	44.26
17	Post harvest management				
	a) Cold storage (No.)	20	40%	24	1599.71
	b) Pack house Units (No.)	200	50%	34	51.00
	c) Ripening chamber		40%	1	88.2
18	Vegetable seed production. (ha)	226	Rs. 50000/hac. For public sector	124	61.700
	HRD (Show/seminar training/workshop)			3	8.42
19	Exposure visit (outside state)	350		145	2.43
20	Mission management				63.61
	Total				3343.82

Field Visits

Joint Inspection Team (JIT) visited PAU, KVK and sites of beneficiaries under National Horticulture Mission programme in the districts of Ludhiana, Amritsar and Jullandhar.

Visit to Ludhiana

A meeting was held on 28th November, 2011 in the conference hall of Farmers' Service Center, Punjab Agriculture University (PAU) Ludhiana with the scientists dealing with NHM assisted projects. The progress of Disease Forecasting Unit was elaborated by Dr. T.S. Thirnd, Head Department of Plant Pathology. He informed that the project has helped in reducing use of fungicides and increasing income of the farmers through yield increase. The scope of the project has already enlarged through mobile phone services, newspapers T.V. and radio. He suggested to increase such units for other crops like Kinnow at their regional station Abohar. Dr. W.S. Dhillon gave copies of utilization certificate and progress report of bio control project, leaf tissue analysis and plant health clinic operating in the Department of Horticulture. Dr. (Mrs.) Manindar Arora, Head Department of Microbiology discuss the progress of the mushroom projects in her department and informed that they purchased the

equipments for preparing ready to use compost. Dr. P.K. Chhuneja, Professor of Entomology discussed the progress of honey festival held under the National Horticulture mission during 2010-11 in which ICAR Scientists and national Bee Board Scientists participated. He was suggested to submit some Bee keeping projects of suitable farmers of Punjab for availing within assistance under NHM. Dr. H.S. Dhaliwal, Additional Director, Department of Extension Education discussed the progress of one year supervisory training course in the Department of Horticulture, PAU, Ludhiana and Gardner Training Class being held at KVK Bhatinda and Gurdaspur, Dr. (Mrs.) R.K. Dhaliwal, Head Department of Extension Education explain that they have conducted eleven trainings off campus and six on campus trainees. Dr. Rajinder Singh, Scientist (Veg.) explain the project of NHM and informed that it has helped in increasing the production and the funds provided have been fully utilized. Dr. S.S. Sooch, Executive Engineer (C-1) informed that funds provided for constructing 14 poly houses at KVKs on an area of 500 sq. yards each are less, therefore, more funds @ Rs 3 lakh/KVKs making a total of 42 lakh may be provided.

The JIT then visited demonstration unit of PAU where protected cultivation practices along with Micro Irrigation facilities are established. Dr. Sharda explained that the micro irrigation facilities for potato cultivation have encouraging results and yield increased manifolds. Canopy management practices for Guava cultivation with micro irrigation facilities were also demonstrated. He explained that farmers are benefited and adopting these practices at their field also.





JIT team visited M/s Gill Agro Cold Storage Samrala and had a meeting with the owners of M/s Punjab cold storage village Pandori, Mullanpur, (Ludhiana) M/s Gur Shakti Cold storage, Goslan (Ludhiana), M/s Mangat cold storage, village Bondli, Samrala, M/s Sandhu cold storage, Garhi, Tarkana, Samrala, M/s Govind cold storage, Garhi Takrana, Samrala. During the discussion it was noticed that they have created /established cold storage facilities with NHM assistance and keen to adopt suggestions prescribed for new technical standards under NHM.

Visited Punjab Agritech Processors limited, Gagra, Ludhiana established Fruit Ripening Unit with NHM assistance.

Sl No.	Details	Remarks
1.	Name of the project	Punjab Agritech Processors Ltd. Gagra, Ludhiana
2.	Year of Implementation	2010-11
3.	Project period	16.7.2011
4.	Name of Beneficiary	Mr. Amit Goel
5.	Location of project	Gagra, The Samrai Ltd.
6.	Total project cost	Rs 240.16/ Rs 228.90 Lakh
7.	Amount released & date	Rs. 88.20 Lakh, and 18/10/2011
8.	Expenditure incurred	Rs. 228.90 Lakh
9.	Status	
	Capacity of unit	8 chambers
	Commodity	Banana
	Equipments purchased	M/s Blue Star
	Condition of infrastructure	Good
	Whether NHM logo displayed	Yes
	Whether funds disbursed to agency	Yes

Banana stored is of not very good quality. Promoters are advised to take good quality product. There are no losses during the storage. Electricity expenditure are met out of the project earnings & unit is earning profit from initial stage. Approx. stored 80 to 90 trucks of 15 MT capacity each.

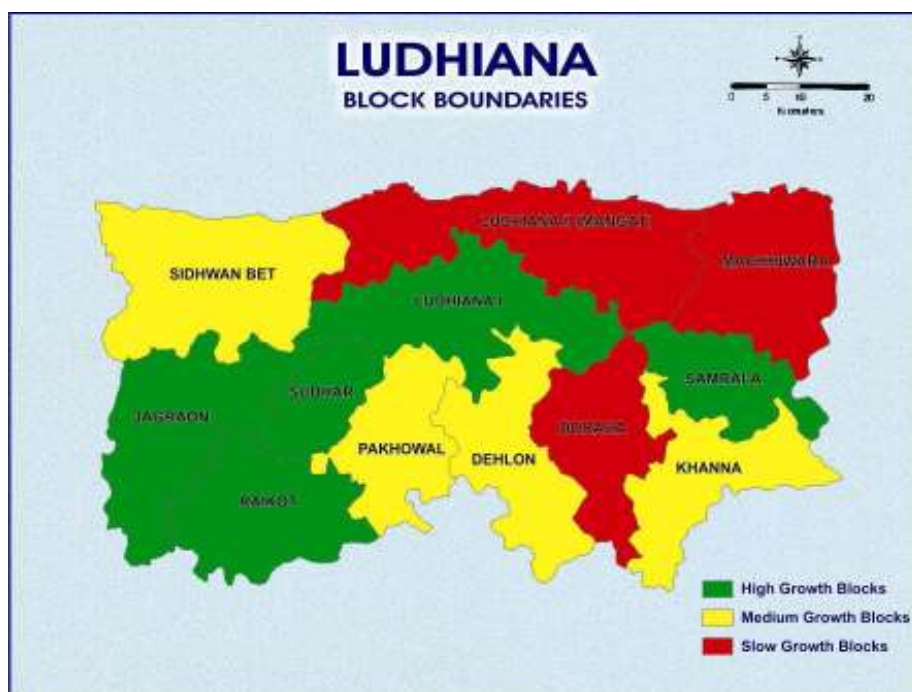






On 29.11.2011, JIT had discussions with consultants M/s Actech Agro and M/s International Traceability System along with nodal officer (DDH) at Ludhiana regarding NVUC. Consultants have given a brief detail about the approach and methodology adopted for base line survey and registration of farmers interest group (FIG). M/s Actech and M/s ITS have selected around six thousand farmers for Base Line Survey in the district of Ludhiana, Fatehgarh Sahib, Sangrur, Patiala & Jalandhar. They are in process to register about 275 FIGs in this area. The detail report of M/s Actech is available with DDH, Ludhiana. The work of market Aggregator is still to be started.

The detail profile of the Ludhiana district is as under:-



PROFILE OF DISTRICT - Ludhiana

S. No.	Item	Characteristics	Value
1		Geographical area (Sq km)	3767Sq. Km (368000 ha)
	A	Net sown area	306,000 ha
	B	Area sown more than once	289,000 ha
	C	Total cropped area	595,000 ha
	D	Cropping intensity (GCA/NSA)	194.4%
2		Administrative	
	A	No of blocks	12
	B	No of villages inhabited and electrified	896
	C	No. of Panchayats	875
	D	No of villages with potable water supply	754
3		Rainfall (mm)	Normal 799.3
4		Agro-climatic region and zone	Central Alluvial plains
5	A	Population Census 2001 (in '000')	3,033
	B	Scheduled Caste	758
	C	Literate	2,036
	D	Literacy (%):	72.76
6		Classification of workers	
	A	Cultivators	149611
	B	Of whom small & marginal ones	71927 / 33 %
	C	Agricultural labourers	226927
	D	Artisans	NA
	E	Household/cottage industries	3705
	F	Allied agro activities	11004
7		Irrigation (000 ha)	
	A	Net irrigated area	306
	B	By canals	10
	C	By wells	-
	D	Tubewells	296
8		Chemical fertilizers (kg per ha)	229
9		Vegetables support facilities	
		Cold Storage Unit	45
		Govt.Fruits Nursery (PB.Sector)	02(PAU&State Hort.Deptt.)
		Govt.Potato & Veg.Farm	1 at Mattewara
		Tissue Culture Lab.(PVT.Sector)	1
		Veg.Export Oriented Unit(Cold Chains in PVT.Sector)	02(Fieldfresh Laddowal & NamdhariFarmFresh Bhaini Sanib)
		Seed/fertilizers/pesticides depots	2075
		Rural markets/ mandis (No.)	151(69 + 82)

		Regulated markets	12
		Sub-yards	82
10		DAIRY	
	A	Cattle (cows)	138223
	B	Buffaloes	562292
	C	Poultry birds	1730477
	D	Sheep/goat	23105
11		Predominant economic activities	Wheat and paddy are main crops occupying 84% and 79% of the net area sown Non-farm sector- Major activities are hosiery and cycle Industries
		Major fruits	Total orchard area = 2250 ha Guava =775 ha, Ber =200 ha Stone Fruits=300 ha, Kinnow=300 ha Malta=20 ha, Lime and Lemon=93 ha Mango=320ha,
		Major Vegetables	Total Area=12000 hac. Prod: 350000 MT.
		Floriculture	Total Area= 85 Hac.
		Spice & Aromatic Crops	2200 Hac.
		Aromatic Plants Distilazation Units(Mentha)	20
		Area Under Protected Cultivation of Vegetables(Polyhouse,Politunnel,Net House,Shade Net House)	59500 Sq.mt.

AMRITSAR

On 29th November, 2011 JIT visited a farmer who is producing planting material for vegetable crops in area of 5 acre under protected cultivation farmer using low level plastic tunnels and also having two poly houses for cultivation of cauliflower seed

SI No.	Details	Remarks
1.	Name of the project	Gurbir Singh S/o Sh Sukhdev Singh

2.	Year of Implementation	2011
3.	Project period	2011-12
4.	Name of Beneficiary	Gurbir Singh
5.	Location of project	Village Bhorsi Rajputana Amritsar
6.	Total project cost	@ Rs 10,000/acre
7.	Amount released & date	Yet to release
8.	Expenditure incurred	
9.	Status	
	Name of nursery and crop for which plants are produced	Cucumber, chilly, tomato, brinjal and capsicum
	Name of crops for which seeds produced	Cauliflower seed
	Quantity produced /acre	Brinjal-400qtl, cucumber-400qtl, capsicum-150 qtl, chilly-200qtl, tomato-250-300qtl.
	Quantity sold	-
	Rate	-
	Amount realized through sale	-
	Whether NHM logo displayed	Yes

During discussions with the farmer, Dr. Sharda, Member of JIT advised to use tubular structure for low tunnel plastic infrastructure with 50 micron plastic sheets. Farmer requested to provide assistance for 25 micron plastic sheets for low tunnels too.





JIT visited Marwaha Cold storage at focal point Amritsar and also had discussions with the owner of this cold storage and owner of M/s S. Gujjar Singh cold storage Mannawala, Amritsar. Marwaha cold storage has been utilized its optimum capacity and the electric consumption is less than the estimated power consumption given in the data sheet during loading, pull down time and holding period.

JIT visited Punjab Agri Export Corporation Ltd. Chandigarh (PAGREXCO) had set up a Perishable Cargo Centre (PCC) in the year in 2006 which started operations from May 1, 2006, it was set up at a cost of Rs. 1.96 crores from which grant was received from APEDA, (Rs. 64.00 lacs) Rural Development Board (Punjab) (Rs. 64.00 lacs) and National Horticulture Mission (NHM) (Rs. 39.90 lacs) and the rest from PAGREXCO.

It consists of cold rooms with refrigeration units on covered area of 80ft x 52ft with four chambers for cold storing of the consignments, an ante room, X-ray area for security clearance of the cargo, air handling units and compressors for refrigeration and two special X-ray machines to clear food products.

Following quantities have been exported from the center since its inception;

2006-07	:90.67 MT
2007-08	:250.53 MT
2008-09	:563.18 MT
2009-10	:809.56 MT
2010-11 (up to Oct. 10)	:262.00 MT

New products have been added to the export basket such as fresh baby corn, green dhanian, garden peas, snow peas and lauki.

The direct flights from International Airport Amritsar to London were discontinued during October 2010 and due to this, no Export was carried out from the last one year through this centre.

The flight has been restored again by the Government of India during October, 2011 and work of export was required to be started. But due to certain short comings like leakage from the roof, broken floor, 2 air conditioners & x-ray machines were out of order, electricity fitting repair etc. it was not possible to operate this Cargo Centre without requisite repair.

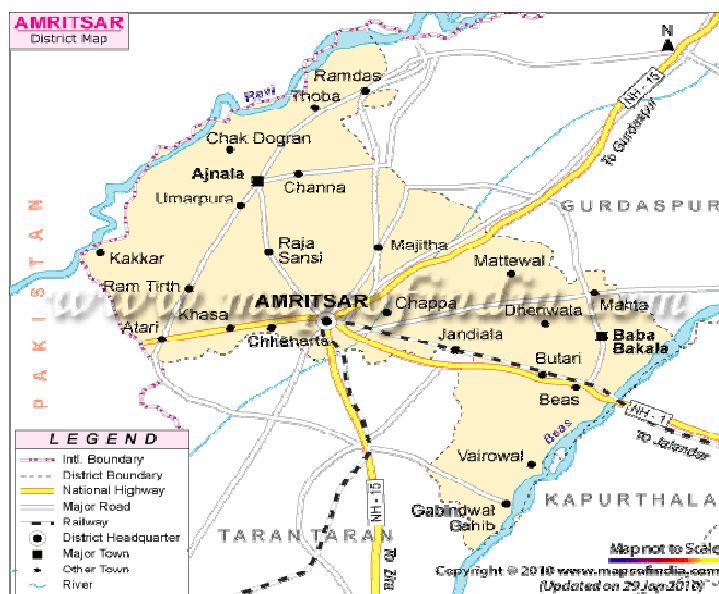
The Cargo Centre was got repaired by PAGREXCO with the total cost of Rs. 5.00 lac. (approx) before the restart of flight and was put in to operation with effect from 14.10.2011.

Since the restart of lights i.e. 14.10.2011 the export like baby corn, snow peas, coriander and assorted vegetables taken place to London (U.K.) through this cargo till date as detailed below:

Sr. No.	Date	Weight in KG.
1	14.10.2011	1227.00
2	14.10.2011	1264.00
3	25.10.2011	788.00
4	25.10.2011	2459.00
5	01.11.2011	1116.00
6	04.11.2011	863.00
7	04.11.2011	1180.00
8	11.11.2011	1104.00
9	20.11.2011	1200.00
10	20.11.2011	344.00
11	20.11.2011	2130.00
12	22.11.2011	1116.00
13	22.11.2011	2469.00
14.	25.11.2011	1173.00
15.	25.11.2011	1283.00
	Total	19716.00

It has also been proposed to upgrade this Cargo centre by adding the facilities like; packing room, docking area, parking area, office rooms for exporters etc. for this purpose Airport Authority of India (AAI) has been requested to provide the additional land for creating these facilities. The case is under consideration of AAI, Government of India.

Horticulture Profile of District Amritsar



Geography & Climate: - Amritsar Distt. is one of the Border Distt. lying in the North - West frontier of Punjab state. It lies between $31^{\circ} - 7'$ and $32^{\circ} - 03'$ North longitude and between $74^{\circ} - 29'$ & $75^{\circ} - 23'$ East longitude and has an international boundary with Pakistan. Topographically Amritsar Distt is surrounded by Distt. Gurdaspur in the North East, Distt. Kapurthala in the East and Distt. Tarn Taran in South East. This Distt. experiences extreme climatic conditions. Summer is severe hot and winter is severe cold. This Distt. consists of 9 blocks.

Potential of Horticulture:- The area under various fruits is 0.96% of the total cultivated area of the Distt (223000 ha) and area under vegetables is 16805 ha, which seems to be negligible as compared to the total cultivated area of the Distt. Due to continuous decline in sub soil water, export potential of horticulture produce with the air cargo facility at international airport and entrance of big players like Reliance, Bharti group etc. in this venture as producers as well as retailer, will definitely give a boost in the near future to horticulture production. The status of major horticulture crops of this Distt. is as under:

Vegetables: Total area of the Distt. under various vegetables is 16805 ha. The main vegetables growing blocks are Verka, Jandiara Guru, Majitha, Tarsikka and Rayya. All types of vegetables can be grown in this district successfully but potato, tomato, cauliflower are the major vegetables of the distt. The yearwise detail of area and production of major vegetables of Amritsar is as under:

Year	Potato		Tomato		Cauliflower		Peas	
	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)
2006-2007	4490	89912	776	19485	657	13294	4860	29410
2007-2008	4660	114608	800	20091	682	13801	4914	29749
2008-2009	4974	122346	1014	31587	974	22340	5127	51270
2009-2010	4958	106205	1126	44191	977	21830	5159	57268
2010-2011	5160	126445	9754	15251	1054	23090	5189	55747

Fruits: In Amritsar Distt. mostly all types of fruits can be cultivated but kinnow, guava , pear and peach are the leading fruits . The total area under various fruits during year 2006-07, 2007-08 , 2008-09 , 2009-10 and 2010-11 is 2032 ha , 2070 ha , 2087 ha , 2123 ha and 2151 ha respectively. The year wise detail of area and production of major fruits of Distt. Amritsar is as under:

Year	Kinnow		Guava		Pear		Peach	
	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)	Area (Ha)	Prod. (MT)
2006-2007	329	4935	441	7718	822	16440	68	1020
2007-2008	395	6048	411	7583	824	18243	58	948
2008-2009	418	6560	398	7380	804	17905	54	885
2009-2010	457	7159	391	7548	806	18113	52	860
2010-2011	504	7858	380	7472	820	18316	51	805

Flowers: Flowers like Roses ,Marigold and Gladiolous,etc. can be grown successfully in Amritsar Distt. but due to the non availability of ready market and their perishable nature, only farmers of those blocks which are nearest to Amritsar city are growing flowers . During 2010-11 the area under different flowers is 28 ha,out of this , major area is under marigold and gladiolus.

Aromatic plants: The major aromatic crop grown in Amritsar Distt. is Celery. The total area under this crop is 2365 ha. The leading blocks growing this crop are Verka, Jandiala Guru, Tarsikka , Rayya and Majitha

JALANDHAR



On 30/11/2011, JIT visited modern poly houses (6 nos), Shade net fitted with fertikit automation in Drip Irrigation system of Mr. Kulwarn Singh Atwal Village Bhikha nagal Mallian Road, Kartar pur, District Jalandhar. The farmer has been producing lilium, Gerbera and Carnation plantation in the poly houses and sending it to the domestic and export markets. The facility created by the farmer with NHM assistance is excellent and SHM may prepare a video film and a success story of it. The glimpses of this facility is as under











JIT visited M/s Bhatti Tissue Tech at village Alipur, Post office Mithapur, District Jalandhar and M/s Surinder cold storage, Jalandhar. Mr. Sukhjit Singh Bhatti President, Confederation of potato seed farmers (POSCON) has shown the facilities which has been established with the assistance of NHM. Both tissue lab and M/s Surinder cold storage have been established recently with state of art technology. Mr. Singh has also shown the facility for sorting, grading and packing machine which has been imported from Netherlands for seed potatoes. They have been doing experiments for drying potatoes in bins system with minimum manual handling. The photographs of the M/s Bhatti Tissue Tech and M/s Surinder cold storage are given in the end of the report.

JIT visited M/s Maharaja Cold storages and M/s Dahiya cold storage. Thereafter, had a meeting with the cold storages owners of

- i. Lakshmi Ice and cold storage, Phillaur
- ii. Piethi cold storage and Ice factory, Davida Ahrana.
- iii. Kartar cold storage, Mausian
- iv. Dahiya cold storage, Billi Chikarni
- v. Maharaja cold storage, Nakadar
- vi. Bal cold storage, Balnau
- vii. New thind sold store, Partap pura, lohara
- viii. Kisan cold storage, Malsian
- ix. Pannu cold storage , Bagga
- x. Kartar chatna cold storage, Dhandwal
- xi. Budhanwal cold storage, V.P.O. Budhan wal

xii. Shri guru har gobind store, BIAS

xiii. Sant Ice and cold storage, Nurmon

Discussions were held mainly on Old Technology and New Technology prescribed as per Technical Standards circulated by NHM/NHB. Performance data sheet have been collected. Cold storage owners were briefed on following aspects:-

- e) Electric consumption in cold storages with old and new technology.
- f) Quality of stored commodity.
- g) Weight loss of stored commodity, and
- h) Training of Managers and Plant operators.

Cold storage using new technology with CO₂ scrubbers has better quality and less weight loss of stored potatoes.

Suggested to have:

- e) **Air circulation:** Minimum 50 CFM/MT of potato (85 CMH/MT of potato) during the loading and pull-down period. However, during the holding period fan power is optimized by fan speed reduced to almost 70% by VFD control (which will reduce fan motor power consumption to 34% and thereafter automatic control will maintain temperature variation within each chamber at less than +/- 1 °C.
- f) **Ventilation requirements in cold storage:** it may range between 2 to 6 air changes per day to maintain CO₂ less than 4000 ppm. It is recommended to opt for mechanical CO₂ extractor with energy recovery system. It is a much better option than the present practice of opening the cold stores doors & hatch windows to ventilate and remove the CO₂ build-up as the later practice results in loss of energy, inability to maintain temperature variation range of +/- 1°C, wetting of product leading to product loss.
- g) **Fogger type external humidification system** with 2 to 10 micron particles with automatic regulation.
- h) **Installation of PLC system** to record the critical storage conditions of the stored commodity.

Cold storage owners were advised to undertake **energy audit** by Competent Engineers/Agencies to get the report of electricity consumption of each unit. In case electricity consumption is not within the acceptable limits of designed consumptions levels, remedial measures shall be adopted as suggested above.

It was also gathered that farmers expected good potato crop during 2011-12 season.

JIT also visited Departments potato farm at Jalandhar Dr. Sharda suggested the Department officers to adopt micro-irrigation facilities and demonstrate these practices to farmers for better quality and yield.

On 1/12/2011, JIT visited KVK Samrala, Ludhiana and **M/s C.A. Vegefruit stores Mohali**, which is under construction with 28 chambers (12 nos x 210 Mt ; 8 nos x 230 MT and 8 nos x 120 MT) for storage of horticulture produce like apples, pears and other fruits and vegetables etc. promoters have been using the prescribed Technical standards-III. The civil construction with steel structure and PUF panels was under progress. Orders for refrigeration plant & imported expected equipments for CA storage were placed. Unit is expected to complete before ensuing apple season of 2012. The photographs of these units are as under



Area & production of Fruits & vegetables (Area in Hectares.), (Production in Metric Tonnes)

Distri cts		2005-06		2006-07		2007-08		2008=09		2009-10		2010-11	
		Area	Prod	Area	Prod	Area	Prod	Area	Prod	Area	Prod	Area	Prod
Jalan dhar	Fruits	1134	17697	1253	19602	1356	23076	1417	25333	1457	27740	1500	-
	Vegetables	31299	504698	32489	460727	32949	608738	32204	711672	31457	722403	31125	688552
Ludhi ana	Fruits	1737	25848	1841	27477	1952	31458	2053	34982	2145	38939	2273	-
	Vegetables	10568	190299	11055	228701	11271	209551	10965	234844	11419	247198	12400	252014
Amrit sar	Fruits	3390	57228	2033	23844	2071	37701	2088	39024	2127	41318	2178	-
	Vegetables	23422	293180	14823	214525	14966	239735	15703	258401	15859	207718	16894	290963

Wrap up meeting with Mission Director, State Horticulture Mission was held on 1/12/2011. Observations of the field visit were discussed and suggestions were given to implement them. The physical and financial progress of Action Plan 2011-12 (copy enclosed at **Annexure 1** was also reviewed. The glimpses of the visit are as under:-

M/s Surinder cold storage, Jalandhar



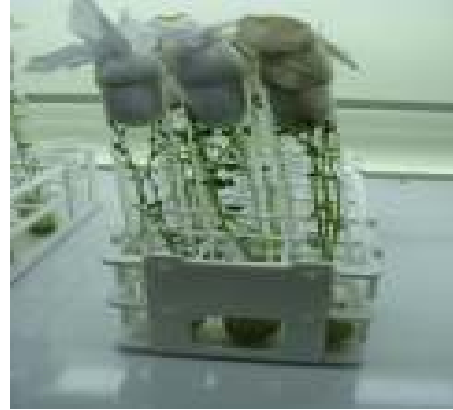






M/s Bhatti Tissue Tech., Jalandhar







Govt. Potato Seed Farm , Kartar Pur, Jalandhar





State Horticulture Mission, Punjab
Annual Action Plan 2011-12

Background

Geographical area of State is 5036 thousand hectares with estimated population of about 2.43 crores. The State has 20 districts and is classified as a sub tropical region. There are three types of agro-climatic zones i.e. Arid-irrigated zone, Sub – mountain Zone and Central Zone. The soil is mostly sandy loam with pH range 8-9. Therefore, it has good potential for cultivation of various horticultural crops.

Approximately, 7861 thousand ha is the cropped area of the geographical area is under cultivation. The net sown area is 42 lac ha which is 84 % of total area. Out of the total net sown area, horticulture crops are grown on an area of 2.69 lac ha which is 3.42 % of the net sown area. The area under fruit crops upto Feb. 2011 is 0.70 lac hectares (ha) with a production of 14.14 lac **MT** and 1.72 lac ha is under vegetable crops with production of 36.28 lac **MT**. Fresh and cut flowers are grown over 1150 ha area with a production of 9039 MT. Whereas Flower seed is produced on 750 ha area and with a production of 68 MT. Besides this spices and aromatic plants are being grown on an area of 25100 ha with a production of 65598 M.T.

Potential of Horticulture in Punjab

Horticultural crops are being grown in the State in about 2.69 lac hectares area with an annual production of 51.48 lac tonnes. The horticulture sector is contributing significantly to GDP in agriculture of the State. Commodity-wise details are given below in **Table-1**.

Table-1

Crops	Area ('000ha)	Production ('000 Mt.s)
Fruits	70	1414
Vegetables	172	3628
Flowers (Seed Production)	0.750	0.068
Spices & Aromatic crops	25	66
Flowers(fresh fruit)	1.150	9
TOTAL	268.9	5117

The Punjab State leads in citrus production among the fruit crops with the largest production of Kinnow. This crop occupies an area of 38837 ha contributing 64.20% of the total fruit production of Punjab. Likewise Potato is the major leading vegetable crop of Punjab having an area of 83117 hac with 60.11 % the vegetable production. Apart

from Kinnow, other fruit crops like Guava, Peach and Pear has significant area in the state.

Strength of Horticulture

Due to the sandy loam soil and agro climatic condition, Punjab State leads in Kinnow production. Based on the regional natural growing conditions state has established Estates of different fruit viz. Citrus Estate, Litchi Estate and Pear Estate for holistic development. End to end approach has been followed resulting in uplifting the socio economic status of the farmers. Besides this, it also leads in potato seed production and supply seed to the other states. State is self sufficient in planting material. There are 85 nurseries in public & private sector. Apart from this about 7 T.C units have been established which are supplying true to type planting material of Potato, Banana & Papaya etc.

Focus Crops of the State:

Main fruit crops of the State are Kinnow, Peach, Pear & Guava. Main vegetable crop of the State is potato apart from the Pea, Cucurbits, & Carrot etc. Besides this seed production of flowers is also done which has great export potential. Flower seeds are exported to Holland. Among spices turmeric & garlic are grown. Emphasis will be given to promote high yielding and certified varieties. District-wise details of crops covered under National Horticulture Mission (NHM) is given in **Table-2**. Only the crops having potential are covered under NHM with end to end approach.

APPROVED CLUSTERS AND CROP MATRIX UNDER NHM

Table-2

No	Crop Clusters	Districts	Crops
1	Fruits (Perennials)	Hoshiarpur, Bathinda, Mukatsar & Abohar.	Kinnow
		Jalandhar, Ludhiana, Nawan Shahar, Patiala.	Peach
		Ludhiana, Sangrur, Patiala, Mohali	Guava
		Amritsar, Tarn Taran & Jalandhar.	Pear
	Fruits (Non Perennials)	Ludhiana, Mohali(S.A.S Nagar) & Fatehgarh Sahib.	Banana
2	Vegetables	Jalandhar, Hoshiarpur, Ludhiana & Bathinda	Potato
3	Flowers	Patiala, Ludhiana, Mohali, Fatehgarh Sahib & Sangrur.	Gladiolus , Marigold
4	Spices	Ludhiana, Amritsar, Hoshiarpur & Gurdaspur.	Garlic & Turmeric.

Selection of Crops for Intervention under NHM and Rationale

The focus crops were selected under NHM on the basis of following parameters:

1. Market linkages (existing and potential)
2. Production advantage - potential in the domestic market
3. Export potential.

Table-3

Sr N o	Focus Crops	Market Linkages				Domestic Market Potential	Export Potential
		AEZ Export	Mandi s	Proce ssing Units	Cold Storages/ Ref. vans		
1	Kinnow	-	√	√		High	High
2	Guava	-	√	-	-	High	-
3	Pear	-	√	-	-	Medium	-
4	Peach	-	√	-	-	High	-
5	Potato	√	√	-	√	High	High
6	Flowers(fresh)	-	√	-	√	High	High
7	Flowers(Seed)	-	-	-	-	-	High

Export potential

Focus Crops	Rationale
Kinnow	<ul style="list-style-type: none"> • Thrust on exports through improvement in pre and post harvest practices. Strong domestic market for Kinnow from Punjab. High nutritional value and having anti cancerous, cholesterol lowering properties.
Potato	<ul style="list-style-type: none"> • Large scope for area expansion and productivity improvement and processing <ul style="list-style-type: none"> - increase export focus of seed potato to other countries.

Strength, Weakness, Opportunities & Challenges (SWOC) Analysis of Horticultural Scenario in Punjab.

Table-4

<p>Strengths</p> <ul style="list-style-type: none"> • Soil profile as well as Agro climatic conditions of the state are suitable for growing different types of horticultural crops. • Adequacy of quality planting material from the Government as well as private registered nurseries. • The average yield of kinnow fruits of the state is substantially higher than all India average. • Farmers in the state are coming forward for huge investment for horticultural activities. • More farmer groups/farmers societies are coming forward to adopt end to end approach. • Based on natural growing climatic conditions, Estates of different fruits such as Kinnow, Lithchi & Pear have been established to provide state & art machinery and technical knowhow under one umbrella. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • The linkage between farmers and R&D institutions is currently weak due to shortage of technical staff. • Due to non amendment of APMC Act wholesale /terminal market could not be established . • Post harvest management facilities like cold storages, pre-cooling units, grading/sorting, ripening units, processing units etc. are not being properly utilized mainly for horticultural crops. • The marketing channels are not well developed. • There is a less awareness on Hi-tech horticulture among the growers likewise, lack of awareness about quality consciousness among consumers. • Interrupted supply of electricity for irrigation is problem with the growers of the state.
<p>Opportunities</p> <ul style="list-style-type: none"> • Scope for trial testing of new horticultural crops especially flowers & vegetable for acclimatization in the state. • Rainfed areas especially Kandi Belt can be utilized for promotion of horticultural crops such as Aonla and Peas. • Cultivation of flowers & high value 	<p>Challenges</p> <ul style="list-style-type: none"> • Depleting water table in the state is great matter of concern to combat to save water resources in the coming years. • Sudden/Drastic changes in the climate are major challenges. Extreme hot or frost conditions cause much loss to the orchards.

<p>vegetables under protected conditions i.e. protected cultivation.</p> <ul style="list-style-type: none"> • To impart training to staff & farmers through S.A.U. • Production and productivity of horticulture crops can be increased. • To promote organic farming & GAP certification for export of produce. • To set up infrastructure for post harvest management, marketing & processing industries for horticultural crops. 	<p>Need to develop varieties which can withstand extreme climatic conditons.</p> <ul style="list-style-type: none"> • Development of varieties free from diseases such as phytophthora in kinnow, early/late blight in potato, needs to be emphasized. • To control excessive use of chemical fertilizer & pesticides in horticulture crops especially vegetables also need to checked. • Lack of online market information.
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Strategy for Horticulture Development

Guiding Principles under NHM

The objective of the National Horticulture Mission is to double the production & productivity of horticulture crops.

There is an end-to-end approach under mission covering production, post harvest management, processing and marketing to assure appropriate returns to growers/producers; Promote Research and Development (R&D) of technologies for production, post-harvest management and processing in potential belts/clusters; Enhance acreage, coverage, and productivity in potential belts clusters.

To achieve the objectives and goals of NHM, Strategy and Road Map has been prepared for next 3 years. The objective of preparing the Strategy and Road Map is to develop a demand-driven approach for horticultural products. The Strategy has been prepared based on the SWOC analysis and includes the following :

- ❖ Increase the area under horticultural crops.
- ❖ Identification of Market linkages of production areas in the State with
 - Agri Export Zones
 - Existing post harvest management infrastructure, processing facilities.
 - Whole sale/Terminal Markets, Existing Mandis.
- ❖ Mapping of production clusters of various horticultural crops with markets
- ❖ To enhance the productivity with good agricultural practices (GAP).
- ❖ Transfer of technology through exposure visits, show & seminars.
- ❖ Identify missing links between farmers and processors, traders and retailers.
- ❖ High tech horticulture under protected conditions.

Existing Infrastructure for Planting material, Post-harvest management, marketing and Processing

A. Nursery Sub-Plan for quality planting material for area expansion of various horticulture crops.

A(i) Existing Planting Material Production Units (nurseries) in the State.

Disease free planting material is pre-requisite for establishment of healthy orchard resulting in quality production. There are about 85 Govt. as well as private registered nurseries in the state from where good quality disease free planting material is supplied to the growers. Apart from this T.C. units are also proving helpful in meeting the arising demand of planting material.

Nursery Act & Certification of Planting Material

The Nursery Act of the State was old & needed amendments. The required amendment has been incorporated in the act. This act is submitted to the State government for approval. After renewal of the nursery act, the nursery owners could be punished with fine or imprisonment if he sells the inferior planting material. Certification of planting material has been made mandatory prior to sale of fruit plants. While procuring the planting material from private nurseries as well as Govt. nurseries, due procedure is adopted for certifying the material by a Technical Committee consisting the representatives of SAU.

The Directorate of Horticulture has already issued instructions to Private Nurseries/Distt. horticulture heads to get the nurseries accredited from NHB prior to the sale of fruit plants otherwise they will not be eligible for the sale of planting material.

B. Existing Infrastructure for Post Harvest Management & Marketing in the State.

Pack Houses:

Under NHM 121 Pack Houses have been set up in the State for fruits and vegetables. These Pack Houses will reduce the postharvest losses to some extent. Pack house is the basic need of horticultural sector for collection grading & sorting of the produce. There is big potential of the activity in the state.

Cold Storages:

The total capacity of cold storage facilities was about 1393000 MT before launching the NHM scheme i.e. before 2005-06. Over 80% of this capacity is utilized by potatoes alone. Thus, at present, total 465 cold storages are available in the State. Few more projects have also been submitted to Govt. of India for sanction.

(a) Cold Storages after launching of NHM Scheme.

Sr. No	Number of Cold Store Before NHM	Capacity (M.T)	Number of Cold Store After NHM	Capacity (M.T)
1.	425	1393000	465	1536992

Markets/Mandis

There are 110 Agriculture Produce Marketing Committee (APMC) markets/mandies in the State.

Waxing, Grading & Processing units

The current processing is less than 2% of the total horticulture production. There is potential for increase in the number of processing units especially for Kinnow, Potato, Turmeric, Aonla, Garlic and Coriander with linkage to the proposed Food Parks.

Table-5

S.No	NAME OF PROCESSOR	DISTRICT	PRODUCT
1	Punjab Agro Juices Limited Village Alamgarh,	Ferozepur,	Kinnow Juice Concentrate, other fruits and vegetable Juice Concentrate.
2	Punjab Agro Juices Limited Unna Road.	Hoshiarpur	-Do-
3	Farmer Agriculture produce organization, Kangmai	Hoshiarpur	Turmeric processing.
4	Iqbal Randhawa processing unit, Phuglana	Hoshiarpur	-Do-
5	Kinnow Waxing and Grading Center Baluana, Teh. Abohar.	Ferozepur.	Waxing of Kinnow fruit
6	Kinnow Waxing and Grading , Center, Badal.	Shri Mukatsar Sahib.	-Do-
7	Kinnow Waxing and Grading Center, Talhiwala Jattan, Teh. Fazilka,	Ferozepur	-Do-
8	Kinnow Waxing and Grading Center, Kangmai,	Hoshiarpur,	-Do-
9	Kinnow Waxing and Grading Center, Chhauni Kalan,	Hoshiarpur,	-Do-

Road Map Ahead:

Progress of various activities made under NHM during 2005-06 to 2010-11 & proposal programme for next 3 years.

Based on the potential for horticulture development in the State, (area already covered, infrastructure available for PHM, Markets & Processing Units), detailed analysis has been made. In order to increase production & productivity of various horticulture crops and to assure appropriate return to the growers, it is proposed to link all the production clusters under NHM with the existing infrastructure and proposed to be created under NHM. Based on the SWOC analysis, following major programmes are proposed to be taken up under NHM during next 3 years.

The priorities are as under:

S No.	Activity	Unit	Potential	Already existing/ covered	Proposed in next 3 years
1	Area expansion				
	Perennial (Kinnow, Guava, Peach & Pear)	Ha.	60000	51000	9000
	Non perennial (Banana)	Ha.	500	135	365
2	Rejuvenation	Ha.	14000	6000	8000
3	Protected cultivation	Ha.			
	a) Green house (All type)		40	11	29
	b) Plastic tunnels		635	90	545
4	Horticulture Mechanization				
	Power operated Machines/Tools		2341	241	2100
	Power Machines (up to 20 BHP)		1932	57	1875
	Power Machines (above 20 BHP)		94	-	94
5	Post harvest management				
	i) Pack house	Nos.	910	121	789
	ii) Cold storage	Nos.	510	425	85
	iii) Control Atmosphere Storage	Nos.	5	1	4
	iv) Refrigerated Van	Nos.	15	10	5
6	Community Water Tank				
	i) Community water tank	Nos.	500	190	310
	ii) Individual water tank	Nos.	100	50	50
	iii) Spices & Aromatic (Garlic, Turmeric, and Mentha)	Ha.	26550	24550	2000
	iv) Nursery				
	(i) Model nursery	Nos.	15	10	5
	(ii) Small nursery	Nos.	90	84	6