



गामीण विकास बजार आयोजना
Market Access for Rural Development

(MARD/ Technical Assistant Team)

PROJECT COMPLETION REPORT
Technology Transfer

MARD/Lumbini-Gandaki Technical Report No. 103

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Technology Transfer

1. Introduction

MARD has concentrated its activities to increase volume of HVC production and its sale in market. It has initiated commercialization of improved and hybrid varieties of vegetable crops in six project districts. It has given some priorities to selected fruit crops such as citrus in Kaski, banana in Rupandehi and Kapilvastu and papaya also. The project has also popularized pointed gourd production in Rupandehi district.

MARD has formed 160 farmers group of 2709 producers in 123 sites of 24 VDCs in project districts (Table 1).

Table 1. Status of Vegetable Production Group

S. N.	Name of District Description	Kaski	Syangja	Palpa	Rupan-dehi	Nawal-parasi	Kapil-vastu	Total
1	No of VDC	4	4	4	4	4	4	16
2	Groups							
	- Number	29	23	23	29	26	32	162
	- No. of members	541	393	364	461	506	487	2752
	- No. of male	323	313	241	384	239	400	1900
	- No. of female	218	80	123	77	267	87	852
4	Group fund – Amount (NRs)	201,363	1,732,960*	398,734	177,265	277,182	216,894	3,004,398

* One group of Triyasi, established in 2053, has more than 1,20,000

There are more than 994 farmers (in MARD assisted farmer groups) who earned more than 50 thousand rupees up to the end of December 2001 (Table 2).

Table 2. Number of Farmers Who Earned more than Rs. 50,000 (up-to December, 2001)

S.N.	Name of Districts	No. of farmers- in Rs. '000				Total
		Rs. 5 to 25	Rs. 25 to 50	Rs. 50 to 100	Above 100	
1.	Kaski	325	120	68	25	528
2.	Syangja	89	37	18	2	146
3.	Nawalparasi	66	19	11	3	99
4.	Kapilvastu	52	36	97	36	221
5.	Palpa	Above Rs. 50, 000				994

Vegetable producer group has started group saving since July, 2000. It has been reported that the saving amount is about Rs. 3,004,398 up to the end of December, 2001. The group fund is being utilized to purchase vegetable seed, sprayers and other agri-inputs. Some group has utilized to install trade and water pumps. Most of the group has provided loans out of group fund.

2. **Project Components**

- Market development
- Increased high value agriculture production
- Improved nutrition
- Bottom-up planning and policy reform

3. **Problems**

3.1 ***Lack of technical know-how on vegetable cultivation among the farmers of MARD project areas especially on:***

- high value vegetable crops
- importance of commercial vegetable cultivation
- technical know-how on off-season, early or late season vegetable production
- little knowledge about the use of improve or hybrid varieties of vegetables
- limited knowledge about season of growing
- lack of information about diseases and pests responsible for crop production and their control
- limited knowledge about health hazard insecticide and fungicides
- lack of knowledge about the use of balance nutrients to maintain the soil fertility, overdose use of nutrients, etc.
- lack of knowledge about the importance of pH maintenance by lime application
- no knowledge about useful and harmful insects for plant protection purposes
- knowledge on IPM (Integrated Pest Management) is almost nil
- no knowledge about different micro-nutrients causing decline of production; specially zinc, boron, iron, manganese, molybdenum, etc.
- limited use of compost responsible for poor yield.
- limited knowledge about nursery technique for seedling production

3.2 ***Limited numbers of Agri-input centers in production sites***

- lack of improve and hybrid seeds, appropriate variety
- lack of seeds on time
- lack of quality seed; assured supply of seeds
- limited quantity as per demand
- no appropriate plant protection chemicals available
- most of the chemicals are costly
- sprayers and dusters are costly
- IPM tools are not available

3.3 ***Lack of irrigation limits production of vegetables specially during winter and summer***

- farmers have to depend upon rain water
- limited knowledge about water management, sometimes over-irrigation cause setback of crop growth; no timely irrigation
- irrigation materials such as pipe, sprinkles not available easily and costly

3.4 *Lack of knowledge about vegetable marketing*

- no knowledge about market-led production, i.e. no demand-led production, vegetable type
- limited volume of production for market
- no information about seasonal demand
- no knowledge about distant market
- no information about price
- limited knowledge about post-harvest handling such as grading, packing, storing, transportation
- lack of group or cooperative marketing

3.5 *Lack of financial support at village level*

- lack of money to buy agri-inputs
- lack of knowledge about saving and credit i.e. group fund

3.6 *Lack of marketing centers*

- lack of collection centers
- lack of market for vegetable
- no storage facilities for perishable vegetables.

4. Strategy

The strategy of TA Team is group approach to deliver the technical services as has been directed by Ministry of Agriculture.

4.1 *Production*

- Increase area for commercial production
- Promote off-season and/or early late crop
- Promote improved or hybrid varieties
- Promote market led production.
- Encourage crop diversification

4.2 *Group Formation*

- Formation of producer group
- Technology transfer, OFD, OST, FFD etc. through groups
- Promote saving and credit
- Encourage participation of women
- Encourage crop production to marketing
- Encourage bottom up planning at grass root level

4.3 *Input Supply by Establishing Agri. Input Center*

- Establish private agri-input supply centers in production area.
- Provide technical know how to the entrepreneurs

4.4 On Site Training (OST)

- Provide technical know to the group members in site itself on different crops as and when necessary.
- Provide training on specialized subjects.

4.5 Farmers Field Day (FFD)

- Organize farmers field day in farmers field for specific crop season.

4.6 On Farm Demonstration (OFD)

- Promote improve/hybrid varieties to increase productivity for commercial production
- To find out off-season varieties and suitable time for vegetable production

4.7 Group Marketing

- Encourage formation of marketing group
- Establish collection centers
- Facilitate fresh vegetable marketing

5. High Value Vegetable Crops

5.1 Importance of using Improve and hybrid varieties for Demonstration

There are many improve and hybrid varieties available in the market of Nepal. The improved seeds are produced within country and there are some being imported from India and other countries. Most of the hybrid ones are from India, Japan, Korean and other countries Cauliflower Snowking and cabbage Greenstone are the hybrid ones being used by farmers for commercial production in most parts of Nepal. New hybrid lines of commercial crops have many good characters, which are given below:

- High yielding characters - Tomato Ramya, Manisha, Abhinash
- Increase size and weight - Tomato Ramya
- Uniform in germination - Most of the seeds
- Uniform size - Cabbage Greenstones
- Uniform in maturity - Most of the variety
- Wide adaptability - for off-season production
- Short duration varieties - Shagun Okra
- Uniform marketable size - Tomato Ramya, Cucumber Maheco
- Good quality for storage and transportation - Ramya and Manisha tomato
- Early or shot duration type - Shagun Okra
- Tolerance to high rainfall - Tomato CL,
- Tolerance to disease - Tomato Gresco, BL

5.2 Off-season / Early / Late Production

MARD Project has prioritized off-season, early or late production in the project areas. Production of crops at times other than during normal season is known as off-season crop

which actually changes availability in market. Farmers get high market price in compare to seasonal crop. Advantages of off-season, early or late vegetable production are given below:

- Higher price in the market and hence high net return per unit area
 - tomato of Bharatpokhari of Kaski and Triyasi of Syangja has high market value when produced during July to October.
 - early cauliflower of Dayanagar, Sundi and Gundi of Rupandehi and Patkhawa of Kapilvastu fetches high return when produced before November.
 - early harvesting of cucumber i.e. March has high market price.
 - radish 40 days early in Madanpokhara of Palpa is marketed at the rate of Rs. 10 to 12 per kg in Butwal market.
 - capsicum, california wonder when produced during October/November has very high market price; it is true for chilli also.
 - cabbage - greenstone produced during October/November fetches high price.
- No problem of marketing, because of limited availability in market.
- Possibility of exporting to long distant market.
- Availability of fresh vegetables during off-season makes long period of availability for consumers.
- Vegetable growing season can be extended.
- Helps crop diversification.

Suitable off-season varieties of high value vegetables have been identified from the on-farm demonstration studies and are being preferred to commercialization by the farmers themselves. According to sale values, lean and peak season of some high value crops are presented in Table 3 given below. Based on the performances, preferred varieties, their suitable planting/harvesting time and production potentials are given in Annex I and II.

Table 3. Some Vegetables with Their High (Peak) and Low (Lean) Sale Values, 1999/2000

S.N	Crops	Market	Peak Season	Lean Season
1.	Tomato	Butwal	Aswin-Kartik and Ashad	Magh-Baisakh
		Pokhara	Aswin-Kartik and Ashad	Magh-Baisakh
		Narayangarh	Aswin-Kartik and Ashad	Magh-Jestha
2.	Cabbage	Butwal	Shrawan-Kartik	Chaitra-Jestha
		Pokhara	Shrawan-Kartik	Chaitra-Jestha
		Narayangarh	Shrawan-Kartik	Falgun-Baisakh
3.	Cauliflower	Butwal	Asadh-Kartik-Magh	Poush-Chaitra
		Pokhara	Shrawan-Kartik-Magh	Magh-Chaitra
		Narayangarh	Asadh-Kartik-Magh	Magh-Chaitra
4.	Radish	Butwal	Asadh-Aswin	Falgun-Baishakh
		Pokhara	Asadh-Kartik, Baisakh-Asadh	Magh-Chaitra
		Narayangarh	Asadh-Aswin	Magh-Falgun
5.	French bean	Butwal	Aswin-Baisakh	Shrawan
		Pokhara	Aswin, Falgun-Baisakh	Kartik
		Narayangarh	Shrawan-Bhadra, Magh-Baisakh	Aswin-Kartik

5.3 *Income from Vegetable*

Vegetable is one of the crop which gives high net return per unit area if grown during off-season. Improved technology with improve/hybrid seeds lead to high productivity. It has been realized by the farmers in project area that use of hybrid tomato increases the production per unit area which gives them more return by selling even at lower price in lean season. Mid-hill farmers of Kaski and Syangja when produce tomato during July to October get high price in market. Net return of tomato hybrid per ropani are presented below:

<u>Harvesting period</u>	<u>Net return per ropani</u>
August-October	Rs. 20,500
November-February	Rs. 20,000
April-June	Rs. 16,000

Income of farmers have been found to increase by growing vegetables in MARD areas. There are farmers who earn more than Rs. 50,000 per year (table 2).

5.4 *Commercial Varieties*

Vegetable varieties used for commercial production in project areas are limited in number. Characteristics of some of the improved and hybrid varieties grown in farmers field are discussed here.

5.4.1 *Tomato*

Tomato is one of the most popular fruit vegetable in Nepal and ranks first in the project pockets too. The altitude variation of the country favors growing tomato in different seasons. It has high value during July to October in most part of the country. The altitude ranges from 500 to 1000 meter also in Bharatpokhari of Kaski and Triyasi of Syangja. Most of the improved varieties of tomato are harvested during rainy season i.e. June to September in Bharatpokhari of Kaski and August to October in Triyasi of Syangja districts.

The crop is grown in raised beds to avoid water logging during rainy season even terraced lands. High dose of compost or cow dung manure (15-20 mt/ha) is applied in the soil. DAP/Complexal and Murate of Potash (225:225:250 NPK/ha) are mixed with compost and applied in soil. Top dressing with 150 kg DAP, 200 kg urea per ha boosts up productivity of this crop. The suitable time of top dressing is 20-25 days and 40-45 days after transplanting.

Various improved and hybrid varieties have been demonstrated (OFD) in the project pockets are given below:

CL1131 (OP) - Indeterminate plant type with vigorous branching; heat resistance and slightly tolerant to bacterial wilt and suitable for rainy season; fruits ready for first harvest in 65-75 days after transplanting; fruit shaped to flatish round firm thick skinned, initially greenish white and becoming yellowish red with slight green shoulder when ripe; good for long distance transportation; yield 15-20 mt per hectare; grown commercially in Kaski and Syangja.

BLA10 (OP) - Indeterminate climbing type; heat resistance and field tolerant to bacterial wilt and suitable for rainy season; fruits ready for first harvest in 65-75 days after transplanting;

fruit weight 60 gm; round, firm, thick skinned, initially greenish and becoming yellowish red when ripe; good for long distance transportation; yield 35 mt per hectare; newly introduced varieties in Kaski.

Gresco OP - Indeterminate type; fruits ready for first harvest in 80-85 days after transplanting; fruit round, medium size; resistance to wilt; yield 20 mt per hectare; grown in Kaski, Palpa

Abhinash (F1) - Medium type plant; fruits ready for first harvest in 50-55 days after transplanting; fruit round, medium size with thick pulp up to 100 gm and red when ripe; good for long distance transportation; yield up to 120 mt per hectare in OFD of 1998/99 in Kapilvastu.

Apurwa (F1) - Determinate type, Tall 100-110 cm height; fruits ready for first harvest in 50-55 days after transplanting; fruit flattish round with thick pulp up to 120 gm and red when ripe; good for long distance transportation; resistance to blight; yields up to 115 mt per ha; in Rupandehi.

Ramya (F1) - Early indeterminate variety; fruits ready for first harvest in 60-65 days after transplanting; suitable for early winter season; fruit round and hardy up to 120 gm becoming red when ripe; uniform ripening; high yield up to 90 mt per hectare under OFD; very popular in Rupandehi and Kapilvastu.

Manisha (F1) - Indeterminate variety; fruits ready for first harvest in 60-65 days after transplanting; fruit round and red when ripe; thick pulp and good for long distance transportation; uniform ripening; high yielding average 70 mt per hectare under OFD and suitable for midhill area; commercially grown in Syangja and Palpa.

Naveen (F1) - Indeterminate variety; fruits ready for first harvest in 60-65 days after transplanting; fruit round medium size and hardy up to 100 gm; red when ripe; resistance to Fusarium and Verticellium wilts; yield up to 90 mt per hectare in OFD.

SCI (F1) - Indeterminate type plant 70-80 cm height; fruits ready for first harvest in 60-65 days after transplanting; fruit round medium size up to 75 gm; red when ripe; slightly resistance to blight; thick pulp and good for long distance transportation; yield up to 110 mt per hectare in OFD; grows well in Terai climate in winter.

Rakshita (F1) - Indeterminate type, fruits ready for first harvest in 60-65 days after transplanting; fruit flattish round up to 100 gm becoming red when ripe; resistance to virus and bacterial wilt; thick pulp and good for long distance transportation; yield up to 110 mt per hectare; being popular in Palpa.

Rupali (F1) - Indeterminate type plant about 60 cm height with profuse branching; fruits ready for first harvest in 80-85 days after transplanting; fruit round, medium size up to 100 gm; red when ripe; resistance to Fusarium and Verticellium wilts; yield up to 90 mt per hectare.

CL Pointed (OP) - Introduced from Panchkhal, Kavre, small size at apex pointed, acidic taste; good for rainy crops as an off-season in hills; fetches high price in September/October.

5.4.2 Cauliflower

Cauliflower is a very popular vegetable in winter. With the availability of varieties and technology its cultivation is also being as an early crop in Terai districts..

High dose of nitrogen and potash is required for this crop. During the planting time, 20 kg DAP, 10 kg Murate of Potash, 3 kg of Urea and 1 kg of Forate or Thimet per ropani mixed with decomposed compost and applied in the soil. After one month of transplanting, 5 kg Urea per ropani is applied as side dressing.

Improved (OP) and Hybrid (F1) Varieties Tested under OFD are discussed below:

Snow-Ball-16 (OP) - Late maturing variety; harvest in 80-90 days after transplanting; leaves dark green; curds snow white and compact, weighing up to 3 kg; good yield up to 50 mt per hectare under OFD; grown as a winters crop in Palpa and Syangja.

Pusa Katiki (OP) - Early maturing variety in 60 days after transplantation; curds clear white and compact with cone like concentric appearance and weighing up to 1 kg; yield up to 24 mt. per hectare, early crop under Rupandehi and Kapilvastu.

Snow Crown (F1) - Early maturing variety in 70-80 days of transplanting; curd medium size compact white weighing up to two kg; good yield up to 30 mt per hectare.

Pusa Deepali (F1) - Early maturing variety in 60 days of transplanting; erect leaves; curd white and compact and weighing 400-500 gm; good yield up to 20 mt. per hectare, early in Terai districts.

Kibo Giant (F1) - Late maturing variety in 130-160 days after transplanting; plants are short stemmed, semi-erect and vigorous; leaves are large, wavy with minutely serrated leaf margins with small spiny projections along the margins and leaf surface waxy green; curds are white to creamy white, compact with cone like concentric appearance at the center of curd and self blenched; yielding 25-30 mt per hectare; grown as a late winter crop in Syangja.

Indam Early (OP) - Early maturing variety in 60 days after transplanting; leaves bent towards curd; curds snow white and compact weighing up to 400 gm; good yielding up to 20 mt. per hectare; grown as an early crop in Rupandehi and Kapilvastu.

Snow Mystique - New F1 lines being popular in Rupandehi, medium size.

5.4.3 Cabbage

Cabbage is commonly grown in winter, availability of improved and hybrid varieties and technology, farmers grow cabbage early and late in Terai.

High dose of nitrogen and potash is required for its cultivation. During the planting time, 20 kg DAP, 10 kg Murate of Potach, 2 kg Furadan or 1 kg Phorate is mixed with 400-500 kg of well decomposed cow dung manure applied in the soil. Seedlings are transplanted 20-45 cm distance in the row. After one month of transplanting, 5 kg Urea and cow dung manure per ropani is applied as side dressing.

Green Coronet (F1) - Medium maturing variety in 60-80 days after transplanting; small stem with few green leaves; resistance to black rot; head solid, some what flat yielding up to 80 mt. per hectare and grows well in summer in hills and terai districts.

Green Stone (F1) - It is similar to Green Coronet, medium maturing variety in 60-80 days after transplanting; few cup shaped shiny green leaves with small stem; head solid, large and some what flat; good yielding up to 80 mt. per hectare and performs well in summer season.

Zenith (F1) - Early maturing variety in 60 days after transplanting; cup shape of lower leaves; planted in close spacing (35 x 30 cm); head solid and weighing up to 700 gm and yielding up to 70 mt per hectare, grown well in Terai and Kaski.

T-621 (F1) - Early maturing in 60 days after transplanting; head solid, yielding up to 80 mt per hectare; being popular in Rupandehi and Kaski.

5.4.4 *Potato*

Potato is a high value cash crop having high productivity and high calorie per unit of land.

The crop required high dose of fertilizers. During the planting time, 200 kg DAP, 200 kg Murate of Potash, 100 kg Urea, 25 kg Zinc Sulphate and 20 kg Phorate/Thimet thoroughly mixed and applied in soil. Cow dung manure is used @ 30 mt per hectare. Top dressing is done, first after one month and another after 45-50 days of sowing.

Kufri Jyoti - Early variety, crop harvested in 110-120 days after sowing; tubers are big, white oval shaped; resistance to blight and wart but required early harvesting; yields 40 mt per hectare.

Kufri Sinduri - Late variety, crop ready to harvest in 140 days after sowing; tubers are medium size, round with deep eyes and light red in color; good storability, suitable for Terai region; yields 40 mt per hectare.

Cardinal - Early variety, becomes ready in 110 days after sowing; tubers are light red; oval shape, yields 40 mt per hectare;

Desiree - Early variety, becomes ready in 110 days after sowing and is suitable for hill and terai; tubers are light red and elongated shaped with good taste; resistance to blight to some extent; yields 30 mt per hectare.

MS 48 - Popular in Kaski (Pokhara valley), low dormancy, wart susceptible in high hill; yields up to 30 mt per hectare.

5.4.5 *Other Vegetables*

Improve and hybrid varieties of other vegetables grown in the project areas are given below:

Cucumber (Bhaktapur local) - Medium season variety, ready in 60-70 days after transplanting; fruit 20-25 cm long with 8-10 cm diameter and yields upto 30 mt per hectare.

Cucumber (Maheco Long) - Long green hybrid variety, with high number of female flowers, hence high yielding character; suitable for terai districts.

Squash (Grey Zucchini) - Early maturing; bearing more female flowers; fruit 20-30 cm long shiny green; resistance to downy mildew, anthracnose, yielding up to 45 mt per hectare. Bulam house F1 is also similar to this but yield less and is susceptible to downy mildew and anthracnose.

Bitter gourd (Coimbtore Long - white long) - Open pollinated variety with white green color; fruit large and long; high price most of the month, attractive price as an early season (March - May); 15-20 mt per hectare, requires staking of roof type.

Bitter gourd (Jhallary) - Open-pollinated variety having dark green color; fruit large and elongated type, Similar market value as Coimbtore long, 10 to 15 mt per hectare; also requires roof type staking.

Onion (Sun Rojo F1) - Bulbs mature in 130-140 days; bulb is big, tight, round and red in color; yields 100 mt per hectare in OFD.

Okra (Shagun F1) - Early maturing; fruits ready for first harvest in 42-45 days after germination; plant 180 cm height; fruits green 10-11 cm long and can be stored longer; resistance to yellow vein mosaic, hopper, aphid and borer; yields 25 mt per hectare.

Radish (Forty-days) - Short duration variety; harvested within 40 days even in Madanpokhara of Palpa condition; small size of 10-15 cm; grown as an rainy season crop in Palpa; winter crop in terai; fetches high price Rs. 10-15 per kg in Butwal market by farmers of Palpa.

Chilli (Tejeswini F1) - Late maturing, fruit ready for picking in 75 days after transplanting, plants dark green, 70 cm height, fruits pungent 9-11 cm pointing downward; yielding up to 20 mt per hectare.

Brinjal (Noorki - OP) - Long purple color variety; high yielding characters, suitable in mid hills for summer and rainy season, less seeds, fruit 10-15 cm long.

Brinjal (Pusa Purple Long (PPL) - OP) - Long purple color variety somewhat large size in comparison to Noorki; high yielding for summer and rainy season in mid hill of Palpa.

Brinjal (Saurav - F1) - Medium season, fruits ready for first harvest within 70 days after transplantation; less number of seeds; yield up to 60 mt per hectare in Terai districts.

Parwal (Pointed groud) - Parwal is one of the high value, each crops which is being imported mostly from India. It is one of the delicious vegetable crop having very high market price. It was found suitable climate to grow in Rupandehi and there are some farmers in Dayanagar growing Parwal. To expand the Parwal area, project introduced some varieties from Bardia to have demonstration since FY 2000/2001. More than 50 farmers are involved in Parwal production at present having one or more than one katha of land. Some farmers could sold Parwal this year itself.

Beans (Kentucky Wonder) - Popular leguminous vegetable having climbing nature, brown color seeds, good market for summer and late rainy season.

- Four Season : Popular beans, climber, black seed, high yield.
- SC-9 : Bush bean, ready to harvest within 40 days, suitable for early crop.
- Rajma : Bush bean, short duration, also suitable for early season.

Papaya (Mathuri and Madhubala) - Papaya varieties have been introduced in Terai districts as well as in Palpa and Syangja, more number of male plants in some area created a problem. Farmers found problem to dispose even though good production in Nawalparasi district.

Banana (William Hybrid) - This variety of banana introduced for demonstration in Rupandehi and Kapilbastu districts; propagated through plant tissue culture technique from Kathmandu, plant-lets raised in nursery for about 3 months transplanted in field.

Citrus - Management demonstration on citrus has been conducted in citrus (mandarin) crops in Bharatpokhari of Kaski district. Practical training on Bordeaux paste application, micro-nutrient spray as well as manuring and fertilizer application were part of demonstration. A visual effect has been found by farmers.

6. Activities Accomplished

6.1 On-site Training (OST)

6.1.1 Crop

Technical service was made available to the farmer group through training at village level on the production site itself. This helped the farmers to have full participation, less time consuming and cost-effective also. Practical training made more fruitful when the training was done in farmers' field itself. The training was provided on the basis of crops grown commercially. The project also provided training on different problems of crop. It has been realized that the nursery raising of seedlings is one of the main subject in most of the groups. Diseases and pests are some of the serious problem, hence plant protection training were given under OST activities.

6.1.2 Specialized Training

IPM

Training cum demonstration have been conducted on IPM of selected vegetable crops such as tomato and cucurbit in Palpa, Syangja, Kaski, Nawalparasi and Kapilvastu. This has also been done in mandarin orange in Kaski. A short term consultant was hired for this purpose*. Results of IPM are discussed below:

IPM on Fruit Borer (*Helicoverpa armigera*) in Tomato - Bioneem spray has been found to minimize the damage of fruit borer of tomato in Panitanki group of Nawalparasi. Use of Heli lure trap was found by showing large number of male fruit borer attracted in the traps of Syangja and Palpa. This is helpful to find out the time of damage. It has been reported that 2nd and 3rd weeks of May have more population in the traps at Syangja and Palpa, while it is

* Training manuals were distributed to the participating members on the IPM technique along with IPM tools.

in first week of May. Spray of 1 ml of 100LE-NPV per liter of water along with 5 drops of blue ink and sticker helped to minimize the larval damage of this insect specially in Syangja. Farmers of Palpa also appreciated the IPM technique for the tomato fruit borer. Syangja farmers themselves used the NPV.

IPM on Cucurbit Fruit Fly (Bactrocera cucurbitae) - Cucurbit fruit fly is responsible for rotting of fruits in cucumber, squash and other cucurbit crops during summer and rainy season. It has been found an increase in population in March to May in Kaski, Syangja, Palpa, Nawalparasi and Kapilvastu pocket areas. Fruit fly traps were used to attract the male flies with the help of Bactrocera cucurbitae lure. This helped to minimize the further breeding of the insect responsible for fruit rotting in the areas where demonstrations have been done. Farmers have started the use of IPM techniques in cucurbit crop in Syangja and Palpa.

IPM on Citrus fruit fly (Bactrocera dorsalis) - Fruit fly trap was used for the citrus fruit fly in Bharatpokhari of Kaski. B. dorsalis lure used in the trap was not found attractive to the male flies as has been reported, probably due to management. It has been found that most of the farmers did not add insecticide in the trap, which is responsible for this ineffectiveness. However, April last week was found more number of population of insects.

IPM on Diamond Back Moth (DBM) (Blutella xylostella) - Delta trap was used for Diamond back moth of cole crops in Sundi of Rupandehi in the month of March, which was not found effective due to use in later part of crop insect. NPV on DBM is effective to minimize the insect population.

OST on Micronutrient

Deficiency of different micro-nutrients in vegetable crops is one of the main reason to decrease the yield or even make failure of the crop. It has been observed deficiency symptoms of zinc, boron, iron, manganese, molybdenum and other in cole crops and tomato. The symptoms are similar to some of the virus disease in tomato. Hence, awareness was created among farmers group by training cum demonstration on micro-nutrients. Use of zinc and boron in tomato helped to minimize the deficiency of symptoms. There are number of chemical products in the market which contains different micro-nutrients such as multiplex, high-power, dithane z-78, borax, zinc sulphate, chelamin, etc. The multiplex and high-power were used during demonstration. It was found effective.

OST on Effective Micro-organism (EM)

EM, a micro-organism product available in market decomposes compost materials within a short period of 30 days instead of 90 days or so in Nawalparasi and Kaski. The demonstration was done to create interest of farmers to fasten the decomposition of compost materials. The compost is one of input which is necessary for the proper growth of vegetable crops.

OST on Seed Production

Seed is one of the main input which is responsible to increase production. There are some vegetable crop seeds not available in plenty on time. The available seeds are also not good quality. Some crop seeds are not available in the market. To meet some of the seed

demands, a seed production has been organized in Madanpokhara of Palpa district. The variety of crop selected was self-pollinated which has less chance of cross pollination. Hence, tomato -Cl pointed, brinjal - Noorki and PPL, and tomato - Monprecos varieties were selected for training purposes. Training was given to the farmers' group on seed-production.

6.3 Farmers' Field Day (FFD)

Farmers' field day is one of the tools to diffuse the improved technology among the farmers. A field day site is selected for the FFD to be organized. Farmers of outside the group specially of surrounding areas generally participated in the FFD. Knowledge about the technique adapted in the FFD site is provided to the participating members.

6.4 On-farm Demonstration (OFD)

Seeds of OFD has been provided to all the members of group. Cost of seeds is reimbursed by them and deposited in their group fund. It has popularized the F1 hybrid varieties in MARD areas. The OFD results have been found variation from one sets to another and season of planting. Farmers' preference has been found as per production and quality specially tomato hybrid variety. There are many improved open pollinated varieties suitable for commercial production in project areas which have been commercialized in the following years. Tomato - Gresco, Cucumber - Bhaktapur Local, Radish - 40 days, and Brinjal - Noorki. The name of crops and their number of varieties used are presented in Annexes IV to X.

6.5 Technology Upgrading to Agri-input Centers

MARD has encouraged to establish agri-input centers in private sectors to supply seeds, plant protection chemicals and other inputs in production area. The object of the input center is to make available quality seeds on time for vegetable growers. It has been realized that seed is one of the main constraint in the promotion of vegetable in project areas. The project took initiation for the purpose of establishment of the agri. input centers. It has organized training to get license to the interested ones with the help of Plant Protection Division of Dept. of Agriculture. There are some suppliers which were established before the project. There are more than 50 agri-input at present.

It has been realized that agri-input supply centers may be the key centers which will provide technical inputs at grass level in the production areas. Hence, the project has given training to upgrade the technology of Agri-Input Suppliers. A manual on the subject was provided to all the concerned input centers who participated during training.

7. Impact of High-value Vegetable Production Program of MARD

1. Changes in Farming System and Crop Diversification

- From traditional cereal crop to vegetable ones,
- Traditional crops replaced by improved vegetable
- Introduction of new commercial vegetable crops like tomato, cucumber, chilli, parwal, etc.
- Changes in season of crop growing - tomato in rainy season, radish in summer and rainy season instead traditional maize in rainy season.
- Growing winter vegetable cauliflower, cabbage tomato, etc instead of wheat.
- Off-season or early or late vegetable crop production.

- Production of high value cash crops like cucumber and bitter gourd as early as February, March; early winter capsicum, cauliflower, cabbage production in lower hills and terai.
2. ***Seedling Production of Vegetable***
 - Use of insecticide as a seed treatment
 - Soil treatment for diseases
 - Seedling treatment for disease
 - Use of growth promoter
 - Seedling production in plastic tunnel
 - Seedling production in plastic bag
 3. ***Improve Land Preparation***
 - Use of more compost or decomposed FYM for vegetable production.
 - Use of required dose of NPK as basal dose
 - Application of micro-nutrients as basal dose
 - Application of insecticide and fungicides as basal dose
 - Preparation of bed for easiness to irrigate
 - Sowing of seeds or transplanting of seedlings on line for easiness of cultural operations.
 4. ***Increase Area and Production***
 - An increase area of vegetable
 - An increase of commercial vegetable
 - An increase of off-season vegetable including early or late crop
 - An increase of volume of production of vegetable
 - Promotion of off-season crop, early or late
 - Use of improved or hybrid varieties
 - Promotion of market demand crop
 - Promotion of new high value crops such as parwal, banana, papaya, chilli
 5. ***Increase Productivity***
 - An increase of productivity by more than two times.
 6. ***Use of Other Improve Technology***
 - Use of IPM
 - Use of micro-nutrient
 - Use of growth promoter
 7. ***Local Institution***
 - Capacity building of farmers and group members, farmers group
 - Promote marketing group or cooperatives of vegetable producers to facilitate marketing.
 - Saving and credit through local resource collection - group fund
 8. ***Agri-inputs Supply Centers***
 - Easy access to seeds, plant protection - chemicals and other inputs
 - Establishment of agri-input centers in production areas.
 - Timely available of quality improved seeds
 -
 9. ***Increase Income***
 - An increase income by vegetable crops
 - Capacity to buy cereals for consumption
 - Less credit requirement

High Value Crops in Terai (Nawalparasi, Rupandehi and Kapilvastu), 2001

SN	Vegetables	Variety	Planting (Month)	Harvesting (Month)	Yield Potential (Kg / Robani)
1	Potato	Kupnri Jyoti, Kufri Sindhuri, Desire	Bhadra-Asnoj & Paush-Magn	Margh Chaitra-Baisakh	1500 - 2000 1500 - 1800 1200 - 1600
2	Cauliflower	Indam Early Pusa Depali, Pusa Katki, Snow Crown, Snow Ball-16 Serrano	Bhadra-Asnoj Bhadra-Asnoj Paush-Magn	Kartik-Margh Kartik-Magn Chaitra-Baisakh	1000 - 1500 1000 - 1200 1000 - 1500 1800 - 2000
3	Cabbage	Green Stone Green Coronet T-621 Zenith	Bhadra-Asnoj Paush-Magn	Margh-Paush Chaitra-Baisakh	2000 - 3000 3000 - 4500 2000 - 3000 1500 - 2700
4	Tomato	Ramiya Manisha Rakshita Abinash Rashmi Naveen Rupali, Namdhari Apurba ACC-9	Bhadra-Asnoj and Paush-Magn	Kartik-Margh and Faigun-Chaitra	3000 - 4500 3500 - 4200 3400 - 5000 4000 - 5000 3500 - 4000 2000 - 3000 3000 - 4000 2500 - 3500 3300 - 4000 2300 - 2800
5	Capsicum	California Wonder	Paush-Magn Srawan-Bhadra	Chaitra-Baisakh Ashoj-Kartik	1000 - 1500
6	Chilli	Tejeswini Suryamukhi Jwala NS. Tapan	Paush-Magn Ashadh-Srawan	Chaitra-Baisakh Ashoj-Kartik	1000 - 1500 500 - 600 600 - 700 1000 - 2000
7	Brinjal	PPL Nurki Saurav Pusha Kranti	Magn-Faigun Srawan-Bhadra	Baisakh-Jestha Ashoj-Kartik	1500 - 2000 1200 - 2000 1500 - 2500 1700 - 2000
8	Cucumber	Maneco Long Poinset Bhaktapur Local	Paush-Magn Margh-Paush (Tunnel) Jestha - Asadh	Chaitra-Baisakh Chaitra-Baisakh Bhadra-Ashoj	1200 - 17000 1000 - 2000 1500 - 2500
9	Bittergourd	Coimbtore Long Jhallary Maneco Long Jaunpuri Faisabadi	Paush-Magn & Jestha-Ashadh	Chaitra-Baisakh Bhadra-Ashoj	1000 - 1500 1000 - 1500 1000 - 1500 1500 - 1600 1200 - 1500
10	Squash	Grey Zucchini Bulan House	Paush-Magn	Chaitra-Baisakh	1000 - 2500 1500 - 2500
11	Bush bean	Bush Bean Four Season S-9	Magn-Faigun	Chaitra-Baisakh	1000 - 1500 1000 - 1500 1000 - 1200
12	Long bean	Sariani Long Khumal Long Kasmiri Long	Magn-Faigun Bhadra	Chaitra-Baisakh	1000 - 2000 1000 - 2000 1000 - 1500
13	Pea	Arkei, Azad	Margh	Magn-Faigun	500 - 600
14	Radish	40-days Tokinose	Bhadra-Asnoj & Margh-Magn	Kartik-Margh Magn-Baisakh	600 - 1000
15	Okra	Arka Anamika Parwani Kranti, Sagun	Srawan-Bhadra Magn-Faigun	Asnoj-Kartik Chaitra-baisakh	600 - 1000 700 - 1500
16	Onion	Red Creole, Nasik Red Sun Roio	Margh-Paush	Chaitra-Baisakh	1500 - 2000 1800 - 2500
17	Watermelon	Sugar Baby	Magn	Chaitra-Baisakh	1500 - 2000
18	Bottlegourd	Local	Magn	Chaitra-Baisakh	1500 - 2000

High Value Crops in Midhills (Syngja, Palpa and Kaski), 2001

SN	Vegetables	Variety	Planting (Month)	Harvesting (Month)	Yield Potential (Kg / Roopani)
1	Potato	Cardinal, Kuphriyoti, Desire, NSI	Bhadra-Ashoj	Margh-Paush	1000 - 2000
2	Cauliflower	Snow Bail-16, Snow Crown, Snow King, Serrano, Pusa Depali, Pusa Katki, Indam Early (early varieties)	Bhadra-Ashoj	Kartik-Margh Ashoj-Kartik	1000 -1500 750 - 1000
3	Cabbage	Green Stone, Green Coronet, KK Cross, T-621	Bhadra-Ashoj	Kartik-Margh	1000 - 2000
4	Tomato	CL-1131, BL-410, CL pointed Gresco, Ramiya, Naveen, Nutan, Rupali, Abinash, Manisha, Rakshita	Jestha-Ashadh & Srawan-Bhadra Bhadra-Ashoj & Magh-Falgun	Srawan-Bhadra Ashoj-Kartik	1000 - 2000 2000 - 2500 1500 - 2000
5	Capsicum	California Wonder	Srawan-Bhadra Paush-Magh	Kartik-Chaitra	1000 - 1500
6	Chilli	Suryamukhi, Jwala, Yatsuphu, Kathmandu, Tejeswini, Tapan.	Srawan-Bhadra Paush-Magh	Kartik-Magh Baisakh	750 - 1000 1000 - 1500
7	Brinjal	Nurki, PPL, PPC Saurab	Asadh-Srawan & Paush-Magh	Asoj-Margh & Chaitra-Baisakh	1000 - 1500 1500 - 2000
8	Cucumber	Bhaktapur Local	Paush-Magh	Chaitra-Baisakh	1000 -1500
9	Bittergourd	Coimbtore Long	Paush-Magh	Chaitra-Baisakh	1000 - 1500
10	Squash	Grey Zucchini	Paush-Magh	Chaitra-Baisakh	1000 - 2000
11	Bush bean	Four Season	Paush-Magh	Chaitra-Baisakh	1000 - 2000
12	Cowpea	Tane	Paush-Magh & Bhadra	Chaitra-Baisakh & Kartik-Margh	1000 - 1500
13	Pea	Arkel, Sikkim	Ashoj-Kartik	Margh-Paush	500 - 1000
14	Radish	40-days	Baisakh-Jestha & Srawan-Bhadra	Ashadh-Srawan & Ashoj-Kartik	1000 - 1500
15	Carrot	New Coroda, Early Nantis	Ashoj-Kartik & Paush-Magh	Margh-Magh & Chaitra-Baisakh	1000 - 1500
16	Okra	Pusa Swani	Srawan-Bhadra	Kartik-Margh	1000 - 1500

Summary of IPM Approach Demonstrated in Project Pockets, 2001

SN	Particulars	Palpa	Nawal-parasi	Kapil-bastu	Rupandehi	Kaski	Syangja	Total
1	Training:							
	Male	23	13	21	33	29	36	155
	Female	7	7	-	-	17	-	27
2	Demo on Heli-lure	90	-	-	-	-	60	150
3	Demo on Funnel Trap	15	-	-	-	-	10	25
4	Demo on Heli-NPV	8	-	-	-	-	5	13
5	Demo on Cucurbit-lure	45	24	46	-	93	36	244
6	Demo on Dorsalis-lure	45	8	16	-	31	12	112
7	Demo on Bottle Trap	30	16	30	-	62	24	162
8	Demo on Bioneem							

Appendix-

Recommended IPM Approach on Selected Crop Pests at Different Project Pockets, 2001

Crops	Pests	District	Loss	Pest Status	Farmers Practice	IPM Approach
Cabbage and Cauliflower	DBM	Rupandehi	80%	Very serious	Frequent use of pesticides	<ul style="list-style-type: none"> Delta trap with <i>Xylostella</i> lure Weekly application of NPV
Cucumber	Fruit fly Virus Mites	Kaski, Syangja, Kapilvastu, Nawalparasi	50%	Very serious	Chemical pesticides	<ul style="list-style-type: none"> Bottle traps with <i>Cucurbita</i> and <i>Dorsalis</i> lure Immediate destruction of infested & damaged fruits
Tomato	Virus Fruit worm	Syangja, Palpa, Nawalparasi	40%	Very serious	Chemical pesticides	<ul style="list-style-type: none"> Funnel traps with heli-lure Weekly use of heli-NPV
Citrus	Fruit fly	Kaski	60%	Very serious	Chemical pesticides	<ul style="list-style-type: none"> Bottle traps with <i>Dorsalis</i> & <i>Cucurbitae</i> lure Immediate destruction of infested & damaged fruits
Eggplant	Root knot nematode Shoot & fruit borer	Rupandehi Rupandehi	90% 90%	Very serious Very serious	Chemical pesticides	<ul style="list-style-type: none"> Treatment of seeds, nursery bed, seedling dip and root treatment after one month of plant establishment Delta trap w/ <i>Lencinode</i> lure Weekly use of Spodo-NPV

Summary of OFDs Conducted by Variety, Number and Year

The name of crops and varieties used in different years are summarized below. It has been reported that most of the varieties used were imported improved and hybrid seeds in the project area to find out the most suitable varieties which gives high productivity. The project has concentrated most in Tomato, Cauliflower, Cabbage, Cucumber and Potato. It also initiated in Parwal and in some fruits, papaya and banana.

S.N.	Name of Crop	FY 1998/99		FY 1999/00		FY 2000/01	
		Var.	No.	Var.	No.	Var.	No.
1	Potato	4	60	13	131	6	6
2	Cabbage	5	68	3	54	4	8
3	Cauliflower - late	6	58	9	84	4	6
	Cauliflower - early	1	13				
4	Radish	1	3	4	22	1	1
5	Tomato	17	122	16	101	7	8
6	Squash	5	23	2	9		
7	Onion	2	27	2	53		3
8	Cucumber	2	33	3	26	2	6
9	Egg plant	2	12	6	14	4	2
10	Okra	5	38	2	22	2	4
11	Hybrid maize (grain)	3	19			4	
	Hybrid maize (green)	2	22				
12	Pointed gourd (Parwal)						2
13	Capsicum	1	3			1	
14	Banana						2
15	Bitter gourd	4	7	1	12	1	4
16	Sponge gourd	6	14			3	
17	Asparagus bean	1	2	1	12		1
18	Chilli	2	9			1	
19	Ridge gourd	1	2		6		
20	Sunflower	4	15				
21	Bottle gourd	4	18				
22	Pea (pod)	2	4				
23	Beans			2	13		
24	Papaya			4	6	1	1
25	Ginger			1	10	2	2

Name of the Varieties used for On-Farm Demonstrations

Fiscal Year 1998/1999		Fiscal Year 1999/2000		Fiscal Year 2000/2001	
Crop/Variety	Crop/Variety	Crop/Variety	Crop/Variety	Crop/Variety	Crop/Variety
Potato	Chilli	Potato	Zuchhini Squash	Potato	Cucumber
NSI 7R	MHP 59	Cardinal	Green	Cardinal	Bhaktapur local
NSI 17	Tejeswani	Desire	G. Zuchhini	Desire	Maheco long
PM	Zuchhini Squash	Kufrijyoti	Onion	Kufrijyoti	Poinset
NSI18	Bulam house (DS+C)	Kufri Sinduri	NS-53	MS 42-2	Super green
Cabbage	Z. Tin (DS+C)	NS-I	Rojo	NSI-6	Egg plant
Green stone	Z. Tin (transplanted)	NSI-11	Cucumber	TSP	Local white
Green coronet	French Green (DS+C)	NSI-12	Bhaktapur Local	Cauliflower	Neelam long
K.K. Cross	F. Green (transplanted)	NSI-17	Long green	Madhuri	Okra
Zenith	Onion	NSI-3w	Kusle	Kibojiant	# 12
T-621	N-53	NSI-6	Egg Plant	Snow Mystique	Safari
Cauliflower late	Sun Rojo	NSI-7	Arkkeshab	Snow Crown	Barsa
Serrano	Cucumber : Variety –	NSI-8	MBTH	Cabbage	Sagun
Ujwala	DS (BL)	Local	Neelam long	Green Stone	Bitter gourd
Kibogiant	DS + BPM	Cabbage	PPL	Green Coronet	Jhallary
No. 071	DS + PT	Green stone	Shaurav	Zenith	White long
Snow grace	Transplanted (seedling)	Green coronet	Pusa Kranti	T-621	Coimbtore long
Snowball-16	DS + C	T-621	Okra	Tomato	Asp. Beans
Cauliflower Early	DS (LG)	Cauliflower	Arka anamika	CL 1131	Kashmire
Indam Early	DS (Poinset)	Early snowball	Sagun	Ramiya	French Bean
Radish	Egg Plant	Early 45 days	Bitter gourd	Manisha	Kentucky
Tokinasi	Shaurav	Indam Early	Jhallary	PK (PP 70)	Pointed gourd
Tomato	N-Hybrid	Indam Katiki	Asp. Beans	PK (PP 170)	Local
Nutan	Okra	Pusa Katiki	K-long	Rakshita	Papava
Avinash-2	Arka Anamika	Ramy	French bean	SC-1	Madhubala
Rashmi	Sagun	S. Ball-16	S-9	Radish	Madhumita
Meghna	Parwani Kranti	Serrano	Four season	Tokinasi	Banana
Naveen 2000	Arka-4	Snow crown	Papava	Onion	William hybrid
Karna	Bhindi # 8	Radish	Mayuri	NRN-53	Citrus
SC-1	Hybrid Maize (A)	Lumle red	Madhubala	Nasiki red	Orange,
Krishna	Pro-Agro 3438	Tokinasi	Madhu		
Rupali	Bioseed 8196	40 days	Madhumira		
SC-3	Pioneer 3056	Early 40 days	Ginger		
Ramya	Hybrid Maize (B)	Tomato	Salyan sel.		
Naveen	Bioseed 8196	CL 1131			
Manisha	Pioneer 3056	Gresco-1			
Naveen 2000+	Capsicum	Gresco-1			
Abhiman	Bharat	Avinash-2			
Arjun	Ridge gourd	Indam 88-2			
Menka	Supriya	Namdhari			
Bitter gourd	Sunflower	Apurva			
Jaunpuri long	GK 2002	Rupali			
Faizabadi	Pro-Agro	Ramya			
Jhallary	BIKI-hybrid	Naveen			
Coimbatore long	MSFH-8	Manisha			
Sponge gourd	Bottle gourd	Naveen 2000+			
White long	Ganesh	NS-815			
MSGH #10	Pusa Naveen	Rakshita			
MSGH #1	S-1	Abhiman			
Pusa Chillo	Gutka	Tropix			
Sarlahi black	Peas (Pod Yield)				
Taroi	Azad-2				
Asparagus Beans	Arkel				
BBT 8091					

OFD Summary of FY 2000/2001

S. N.	Crop/Variety	All Pockets					2000/2001 P.M.	# of pocket where OFD conducted or compared
		# of farmer	Ave. yield (t/ha)	Highest				
				Yield (t/ha)	Location			
1. Potato								
	Cardinal	7	18	25	Bedauli, RUP		1	
	Desire	7	15	20	Krishnapur, RUP		1	
	Kufrijyoti	7	24.1	36	Bhagwanpur, KV		1	
	MS 42-2	8	12.12	20.4	KK		1	
	NSI-6	35	4.4	24	Ganeshtole PP		1	
	TPS	31	29	33	Mejhi, NP		1	
	<i>All varieties planted</i>	95	16.31	36	Bhagwanpur, KV	24.8	5	
2. Cauliflower								
	Madhuri	21	21	32	Lakadigadh, RUP		1	
	Kibojiant	23	18.74	33	Tintiaap, PP		2	
	Snow Mystique	2	27	42	Shitalnagar, NP		2	
	Snow Crown	176	18.24	60	Fulbari, PP		6	
	<i>All varieties planted</i>	222	18.63	60	Fulbari, PP	16.15	6	
3. Cabbage								
	Green Stone	44	35.2	71	Shivapur, KV		3	
	Green Coronet	42	28.56	49	Simalchautari, SJ		2	
	Zenith	8	30	35	Orlahawa, RUP		1	
	T-621	25	15.2	45	Mahadeva, RUP		2	
	<i>All varieties planted</i>	119	29.55	71	Shivapur, KV	23.37	8	
4. Tomato								
	CL 1131	144	*				1	
	Ramiya	122	25.24	60	Jhopardi, NP Pitlekh, SJ		3	
	Manisha	119	24.1	70	Triyasi, SJ		3	
	PK (PP 70)	1	*					
	PK (PP 170)	7	*					
	Rakshita	29	*					
	SC-1	29	53.76	80	Patkhawa, KV		1	
	<i>All varieties planted</i>	451	27.8	80	Patkhawa, KV	24.63		
5. Radish								
	Tokinasi	64	24	40	Bharthan, SJ		1	
	<i>All varieties planted</i>	64	24	40	Bharthan, SJ	23.34		
6. Onion								
	NRN-53	15	36.13	42	Deupura, KV		1	
	Nasiki red	26	18.77	30	Sundi, RUP		2	
	<i>All varieties planted</i>	41	25.11	42	Deupura, KV	18.93	3	
7. Cucumber								
	Bhaktapur local	106	33.45	50	Masyangkot, SJ		2	
	Maheco long	30	15.77	21	Jhopardi, NP		2	
	Poinset	12	14.09	20	Patkhawa, KV		1	
	Super green	11	11.35	23	Bijgauri, KV		1	
	<i>All varieties planted</i>	159	27.13	50	Masyangkot, SJ	22.35	6	

S. N.	Crop/Variety	All Pockets					
		# of farmer	Ave. yield (t/ha)	Highest		2000/2001 P.M.	# of pocket where OFD conducted or compared
				Yield (t/ha)	Location		
8. Egg plant							
	Local white	10	27	30	Dubihawa, RUP		1
	Neelam long	5	35	40	Sunbarsa, RUP		1
	<i>All varieties planted</i>	15	29.67	40	Sunbarsa, RUP	17.60	1
9. Okra							
	# 12	1	15				1
	Safari	3	25	30	Patkhawa, KV		1
	Barsa	2	22.5	30	Patkhawa, KV		1
	Sagun	14	20.71	30	Jagadishpur, KV		1
	<i>All varieties planted</i>	20	21.25	30	KV	14.30	1
10. Bitter gourd							
	Jhallary	7	12.29	16	Gundi, RUP		2
	White long	4	17	21	Panitanki, NP		1
	Coimbtore long	3	11	16	Triyasi, SJ		1
	<i>All varieties planted</i>	14	13.36	21	Panitanki, NP	11.05	2
11. Asp. Beans							
	Kashmire	30	10.78	18	Khairnidi, RUP		2
	<i>All varieties planted</i>	30	10.78	18	Rhairnidi, RUP	NA	2
12. French bean							
	Kentucky wonder	11	10	12	Triyasi, SJ		1
	<i>All varieties planted</i>	11	10	12	Triyasi, SJ	11.42	1
13. Pointed gourd							
	Local	38	*				
	<i>All varieties planted</i>	38	*			NA	2
14. Papaya							
	Madhubala	1	*				1
	Madhumita	2	*				1
	<i>All varieties planted</i>	5	*			21.85	1
15. Banana							
	William hybrid	22	*				2
	<i>All varieties planted</i>	22	*			22.58	2
16. Citrus							
	Orange, Mandarin	28	6.07	11.18	Lamgadi	6.80	1

* On-going (during reporting period)

OFD Summary of F.Y. 1999/2000

Crop/Variety	All Pockets				Crop/Variety	All Pockets				Crop/Variety	All Pockets			
	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	1999/2000 P. M.		# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	1999/2000 P. M.		# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	1999/2000 P. M.
1. Potato					4. Radish					8. Cucumber				
Cardinal	33	22.77	69		Lumle red	4	50	55		Bhaktapur Local	16	23.97	52.4	
Desire	28	21.39	32		4.1 Tokinasi	12	20.67	34		Long green	8	22.44	35	
Kufrijyoti	33	20.68	82		40 days	7	16.07	20		Kuslc	2	10.50	11	
Kufri Sinduri	28	27.16	46		Early 40 days	3	8.75	12.5		All varieties planted	26	22.46	52.4	19.84
NS-1	2	28.81	50.25		All varieties planted	22	23.94	55	13.47	9. Egg Plant				
NSI-11	1	13.6	13.6		5. Tomato					Arkkeshab	4	0		
NSI-12	1	27.6	27.6		CL 1131	5	17.40	41.5		MBTH	2	*	*	
NSI-17	1	24	24		Gresco-1	3	9.83	18		Neelam long	4	40.67	60	
NSI-3w	1	11	11		Gresco	4	*			PPL	4	29.33	40	
NSI-6	1	25.2	25.2		Avinash-2	4	78.93	85		Shaurav	8	8.75	37	
NSI-7	1	21.6	21.6		Indam 88-2	6	31.09	60		Pusa Kranti	4	18.88	32	
NSI-8	1	12	12		Namdhari	2	67	80		All varieties planted	24	17.73	60	
Local	3	13	15		Apurva	7	46.64	56		10. Okra				
All varieties planted	131	22.79	82	13.2	Rupali	15	30.13	70		Arka anamika	11	12	16	
2. Cabbage					Ramya	6	67.25	90		Sagun	11	11.96	20	
Green stone	22	39.53	60		Naveen	5	61.20	81		All varieties planted	22	11.98	20	10.4
Green coronel	7	52.71	90		Manisha	19	40.26	83		11. Bitter gourd				
T-621	29	38.05	75.4		Naveen 2000+	7	46.53	83.33		Jhallary	12	19.54	30	
All varieties planted	54	40.18	75.4	21.22	NS-815	13	46.90	55		12. Asp. beans				
3. Cauliflower					Rakshita	7	59.73	91		K-long	6	13.17	25	
Early snowball	8	18.52	30		Abhiman	2	0			13. French bean				
Early 45 days	1	*			Tropix	4	*			S-9	9	10.89	19.2	
Indam Early	11	18.32	29		All varieties planted	101	43.17	91	21.6	Four season	4	7.64	10.5	
Indam Katiki	14	12.11	23.5		6. Zuchhini Squash					All varieties planted	13	9.89	30	10.7
Pusa Katiki	14	12.22	21		Green	1	24	24		14. Papaya				
Ramy	5	*	*		G. Zuchhini	8	24.6	25		Mayuri	3	*	*	
S. Ball-16	3	11.87	12.9		All varieties planted	9	24.53	25		Madhubala	1	*	*	
Serrano	32	30.4	60		7. Onion					Madhu	1	*	*	
Snow crown	2	24.8			NS-53	27	31.36	41		Madhumira	1	*	*	
All varieties planted	84	20.81	60	14.5	Rojo	26	40.41	74		All varieties planted	6	*	*	
					All varieties planted	53	35.8	85	16.01	15. Ginger				
										Salyan sel.	10	*	*	

Note: P.M. = Performance Monitoring.

OFD Summary of F.Y. 1998/1999

Crop/Variety	# Loca-tion	Yield (mt/ha)	Yield range (mt/ha)	Crop/Variety	# Loca-tion	Yield (mt/ha)	Yield range (mt/ha)
Potato				Zuchhini Squash			
NSI 7R	30	26.275	15.0 – 54.3	Bulam house (DS+C)	4	17.000	13.0 – 19.5
NSI 17	17	29.632	16.0 – 43.0	Z.Tin (DS+C)	4	27.622	21.2 – 40.0
PM	6	21.138	16.0 – 25.0	Z.Tin (transplanted)	4	45.250	2.00 – 106.0
NSI18	7	28.939	26.0 – 48.9	French Green (DS+C)	7	24.214	14.0 – 28.9
<i>Sub total</i>	<i>60</i>	<i>26.496</i>	<i>15.0 – 54.3</i>	F. Green (transplanted)	4	9.850	5.0 – 20.9
Cabbage				<i>Sub total</i>	<i>23</i>	<i>24.787</i>	<i>5.0 – 106.0</i>
Green stone	23	40.507	16.0 – 75.0	Onion			
Green coronet	14	47.237	20.4 – 90.0	N-53	23	29.069	10.0 – 57.0
K.K. Cross	2	18.250	17.0 – 19.5	Sun Rojo	4	46.783	30.0 – 80.4
Zenith	25	38.306	16.0 – 75.0	<i>Sub total</i>	<i>27</i>	<i>37.926</i>	<i>10.0 – 80.4</i>
T-621	4	19.250	19.0-20.0	Cucumber : Variety – Bhaktapur Local			
<i>Sub total</i>	<i>68</i>	<i>32.710</i>	<i>16.0 – 90.0</i>	DS (BL)	4	24.900	15.7 – 30.0
Cauliflower late				DS + BPM	1	40.800	-
Serrano	22	25.976	7.7 – 49.0	DS + PT	1	47.900	-
Ujwala	11	28.367	15.9 – 40.0	Transplanted (seedling in polypot + transplanted)	9	21.416	20.0 – 78.571
Kibogiant	11	21.950	12.5 – 40.0	DS + C	4	36.751	19.4 – 43.9
No. 071	4	15.950	11.1 – 18.5	DS (LG)	10	22.198	9.3 – 50.4
Snow grace	4	12.615	5.7 – 17.2	DS (Poinset)	4	31.500	20.0 – 42.0
Snowball-16	6	9.519	2.0 – 14.6	<i>Sub total</i>	<i>33</i>	<i>32.200</i>	<i>9.3 – 78.5</i>
<i>Sub total</i>	<i>58</i>	<i>16.404</i>	<i>2.0 – 49.0</i>	Egg Plant			
Cauliflower Early				Shaurav	10	32.442	15.0 – 50.0
Indam Early	13	18.566	10.0 – 32.0	N-Hybrid	2	37.000	-
Radish				<i>Sub total</i>	<i>12</i>	<i>34.721</i>	<i>15.0 – 50.0</i>
Tokinasi	3	23.891	20.0 – 30.0	Okra			
Tomato				Arka Anamika	11	8.415	4.5 – 17.0
Nutan	1	72.000	-	Sagun	4	8.316	5.5 – 11.0
Avinash-2	6	91.350	65.0 – 135.0	Parwani Kranti	8	15.614	3.9 – 25.0
Rashmi	12	40.556	8.0 – 71.6	Arka-4	4	22.500	20.0 – 24.0
Meghna	3	81.925	81.7 – 82.0	Bhindi # 8	11	14.735	8.0 – 24.0
Naveen 2000	2	59.850	40.0 – 79.7	<i>Sub total</i>	<i>38</i>	<i>13.916</i>	<i>3.9 – 25.0</i>
Karna	9	52.185	30.0 – 90.0	Hybrid Maize (A) Grain Yield			
SC-1	4	27.667	10.0 – 38.0	Pro-Agro 3438	1	7.777	-
Krishna	7	36.167	10.5 – 50.0	Bioseed 8196	8	5.681	3.8 – 10.6
Rupali	17	52.800	7.0 – 110.0	Pioneer 3056	10	6.725	5.4 – 9.2
SC-3	4	38.800	25.0 – 48.0	<i>Sub total</i>	<i>19</i>	<i>6.728</i>	<i>3.8 – 10.6</i>
Ramya	20	63.295	6.2 – 124.5	Hybrid Maize (B) Green Cobs (#)			
Naveen	14	69.496	22.2 – 124.5	Bioseed 8196	11	84167	40000-118000
Manisha	11	64.140	10.0 – 119.0	Pioneer 3056	11	94858	46667-137500
Naveen 2000+	2	47.420	35.0 – 59.8	<i>Sub total</i>	<i>22</i>	<i>89512</i>	<i>40000-137500</i>

(contd.) Annex-VII

Crop/Variety	# Location	Yield (mt/ha)	Yield range (mt/ha)	Crop/Variety	# Location	Yield (mt/ha)	Yield range (mt/ha)
Abhiman	5	52.600	50.0 – 55.0	Capsicum			
Arjun	2	18.766	7.5 – 30.0	Bharat	3	10.375	5.0 – 16.5
Menka	3	44.667	38.0 – 48.0	<i>Sub total</i>	3	10.375	5.0 – 16.5
<i>Sub total</i>	122	53.746	7.0 – 135.0				
Bitter gourd				Ridge gourd			
Jaunpuri long	2	29.875	29.0 – 30.75	Supriya	2	29.000	28.0 – 30.0
Faizabadi	2	26.525	25.0 – 28.05	<i>Sub total</i>	2	29.000	28.0 – 30.0
Jhallary	2	15.000	13.3 – 16.6	Sunflower			
Coimbatore long	1	13.333	-	GK 2002	4	2.666	1.6 – 3.3
<i>Sub total</i>	7	21.183	13.3 – 30.75	Pro-Agro	4	2.666	2.2 – 3.4
Sponge gourd				BKI-hybrid	3	2.400	1.2 – 4.8
White long	2	33.000	32.0 – 34.0	MSFH-8	4	3.950	2.0 – 6.0
MSGH #10	2	23.333	23.3 – 23.3	<i>Sub total</i>	15	2.920	1.2 – 6.0
MSGH #1	1	26.667	-	Bottle gourd			
Pusa Chillo	1	5.000	-	Ganesh	2	102.50	99.0 – 106.0
Sarlahi black	4	12.159	10.0 – 13.137	Pusa Naveen	2	113.00	106.0 – 120.0
Taroi	4	12.403	11.5 – 14.4	S-1	7	32.619	20.0 – 43.3
<i>Sub total</i>	14	18.760	10.0 – 34.0	Gutka	7	26.667	15.0 – 36.6
Aspar. Beans				<i>Sub total</i>	18	68.696	15.0 – 120.0
BBT 8091	2	11.750	11.5 – 12.0	Peas (Pod Yield)			
<i>Sub total</i>	2	11.750	11.5 – 12.0	Azad-2	2	9.310	9.320 – 9.320
Chilli				Arkel	2	7.810	7.8 – 7.820
MHP 59	5	7.104	3.3 – 10.8	<i>Sub total</i>	4	8.560	7.8 – 9.3
Tejeswani	4	6.750	4.0 – 10.0				
<i>Sub total</i>	9	6.927	3.3 – 10.8				

OFD Yield Summary 1998/1999

District Rupandehi

Crop/Variety	# of Location	Yield mt/ha	Crop/Variety	# of Location	Yield mt/ha
1. Potato			5. Onion		
1.1 NSI 17	3	25.000	5.1 N-53	2	12.500
1.2 NSI 18	4	21.250	<i>1 variety</i>	2	12.500
1.3 NSI 7R	5	21.666	6. Okra		
<i>3 Varieties</i>	<i>12</i>	<i>22.639</i>	6.1 Arka Anamika	4	6.750
2. Cauliflower			6.2 Sagun	4	8.316
2.1 Early variety:			<i>2 Varieties</i>	8	7.533
2.1.1 Indam Early	3	14.444	7. Cucumber		
2.2 Late variety:			7.1 Long Green	4	10.250
2.2.1 Serrano	3	25.889	<i>1 Variety</i>	4	10.250
2.2.2 Ujwala	5	30.300	8. Hybrid Maize		
<i>Late varieties</i>	8	<i>28.095</i>	8.1 Poiner 3056	4	63333**
Cauli Total (2.1+2.2)	11	21.269	8.2 Bioseed 8196	3	46667**
3. Cabbage			<i>2 Varieties</i>	7	55000
3.1 Green Stone	8	43.021	9. Bottle gourd		
3.2 Zenith	8	33.333	9.1 Gutka	7	26.667
<i>2 Varieties</i>	16	38.177	9.2 S-1	7	32.619
4. Tomato			<i>2 Varieties</i>	14	29.643
4.1 Avinash-2	2	70.000	10. Bitter gourd		
4.2 Ramya	5	79.533	o.g.		
4.3 Naveen	5	77.433	10.1		
4.4 Rashmi	1	40.000	10.2		
4.5 Manisha	3	48.333	<i>2 Varieties</i>		
4.6 Karna	3	58.133	11. Sunflower		
4.7 SC-1	2	20.000	11.1 GK 2002	4	2.666
4.8 Rupali	2	45.000	11.2 Pro-Agro	4	2.666
4.9 SC-3	2	32.500	<i>2 Varieties</i>	8	2.666
4.10 Krishna	2	42.500			
<i>10 Varieties</i>	27	51.343			

Note :

* due to adverse weather condition the yields were too low.

** Green cobs

o.g.= on-going

(contd..) Annex-VIII

OFD Yield Summary 1998/1999, District Kapilvastu

Crop/Variety	# of Location	Yield mt/ha	Crop/Variety	# of Location	Yield mt/ha
1. Potato			7. Egg Plant		
1.1 NSI 7R	7	23.357	7.1 Saurav	3	46.333
1.2 NSI 17	3	38.000	<i>1 Variety</i>	3	46.333
1.3 PM	3	20.333	8. Okra		
<i>3 Varieties</i>	13	27.230	8.1 B #8	4	22.000
2. Cauliflower			8.2 P.K.	4	22.875
2.1 Early variety			8.3 A-4	4	22.500
2.1.1 Indam Early	8	23.750	<i>2 Varieties</i>	12	22.458
2.2 Late variety			9. Cucumber		
2.2.1 Serrano	4	27.725	9.1 Long Green	3	42.133
2.2.2 Ujwala	4	19.800	9.2 Poinset	4	31.500
2.2.3 No. 71	4	15.950	<i>2 Varieties</i>	7	36.816
<i>Late varieties</i>	12	21.158	10. Hybrid Maize		
Cauli Total (2.1+2.2)	20	22.454	10.1 Bioseed 8196	1	110000
3. Cabbage			10.2 Pioneer 3056	1	137500
3.1 Green Stone	3	45.000	<i>2 Varieties</i>	2	123750
3.2 Zenith	3	40.255	11. Ridge gourd		
<i>2 Varieties</i>	6	42.627	11.1 Supriya	2	29.000
4. Tomato			<i>1 Variety</i>	2	29.000
4.1 Nutan	1	72.000	12. Sponge gourd		
4.2 Avinash-2	1	135.000	12.1 White long	2	33.000
4.3 Rashmi	1	50.000	<i>1 Variety</i>	2	33.000
4.4 Karna	1	54.000	13. Pea		
4.5 Krishna	3	56.667	13.1 Arkel	2	7.810 (green pod)
4.6 Rupali	2	56.765	13.2 Azad	2	9.310 (green pod)
4.7 Ramya	3	93.000	<i>2 Varieties</i>	4	8.560
4.8 Naveen	3	43.500	14. Bitter gourd		
4.9 Manisha	2	70.000	13.1 Jaunpuri long	2	29.875
4.10 Abhiman	5	52.600	13.2 Faizabadi	2	26.525
4.11 Menka	3	44.667	<i>2 Varieties</i>	4	28.200
4.12 Naveen 2000+	1	59.840	15. Zucchini squash		
<i>12 Varieties</i>	26	65.670	15.1 Z. Tin	2	35.000
5. Onion			15.2 Fresh green	2	23.500
5.1 N-53 (Nasik red)	13	36.817	<i>2 Varieties</i>	4	29.250
5.2 Sun Rojo	3	63.567	16. Asparagus Beans		
<i>2 variety</i>	16	50.192	16.1 Bang B. tong 8091	2	11.750
6. Chilli			<i>1 Variety</i>	2	11.750
6.1 MHP 59	4	10.875	17. Bottle gourd		
6.2 Tejeshwani	3	9.500	17.1 Pusa Naveen	2	113.000
<i>2 Varieties</i>	7	10.187	17.2 Ganesh	2	102.500
			<i>2 Varieties</i>	4	107.750

Note : * due to adverse weather the yields are low.

OFD Yield Summary 1998/1999

District Nawalparasi

Crop/Variety	# of Location	Yield mt/ha	Crop/Variety	# of Location	Yield mt/ha
1. Potato			6. Zukini		
1.1 PM	3	21.944	6.1 Zukini tin	1	26.666
1.2 NSI 18	3	36.629	6.2 Fresh green	1	26.666
1.3 NSI 7R	5	35.224	2 Varieties	2	26.666
3 Varieties	11	31.266	7. Hybrid Maize		
2. Cauliflower			7.1 Pioneer 3056	5	62600 (green cob)
2.1 Early variety			7.2 Bioseed 8196	6	62000 (geen cob)
2.1.1 Indam Early	2	17.500	2 Varieties	11	62300
2.2 Late variety			8. Sunflower		
2.2.1 Serrano	6	37.833	8.1 BIKI-F1	3	2.400
2.2.2 Ujwala	3	35.000	8.2 MSFH-8	4	3.950
2.2.3 Kibo giant	3	32.250	2 Varieties	7	3.175
Late varieties	12	35.028	9. Brinjal (Egg plant)		
Cauli Total (2.1+2.2)	14	26.264	9.1 Saurav	2	27.500
3. Cabbage			1 Variety	2	27.500
3.1 Green Stone	6	69.167	10. Chilli (o.g)		
3.2 Green Coronet	6	76.500	10.1		
3.3 Zenith	6	65.833	10.2		
3 Varieties	18	70.500	2 Varieties		
4. Tomato			11. Okra		
4.1 Naveen	2	108.250	11.1 Arka Anamika	3	8.444
4.2 Ramya	3	99.767	11.2 MBH-8	3	9.556
4.3 Krishna	1	35.000	2 Varieties	6	9.000
4.4 Karna	2	80.150	12. Cucumber		
4.5 SC-3	1	48.000	12.1 Long green	3	14.211
4.6 Rupali	5	92.960	1 Variety	3	14.211
4.7 SC-1	1	25.000	13. Bitter gourd		
4.8 Avinash-2	2	90.000	13.1 Jhallary	2	15.000
4.9 Manisha	2	97.450	1 Variety	2	15.000
4.10 Rashmi	2	58.350	14. Sponge gourd		
4.11 Meghna	2	81.850	14.1 MSGH-10	2	23.333
4.12 Naveen 2000	1	79.700	14.2 MSGH-1	1	26.667
12 Varieties	24	74.706	14.3 Pusa Chillo	1	5.000
5. Onion			3 Varieties	4	18.333
5.1 N-53 (Nasik red)	4	35.750	15. Asparagus beans (o.g)		
5.2 Dark Red	4	32.500	15.1		
2 varieties	8	34.125	15.2		
			2 Varieties		

Note : o.g. = on-going

OFD Yield Summary 1998/1999

District Palpa

Crop/Variety	# of Location	Yield mt/ha	Crop/Variety	# of Location	Yield mt/ha
1. Potato			5. Onion		
1.1 NSI 17	4	32.124	5.1 N-53 (Nasik red)	3	35.278
1.2 NSI 7R	4	28.917	<i>1 Variety</i>	3	35.278
<i>2 Varieties</i>	8	30.520	6. Chilli		
2. Cauliflower			6.1 MHP-59	1	3.333
2.1 Serrano	6	14.768	6.2 Tejeswani	1	4.000
2.2 Snow grace	6	12.615	<i>2 Varieties</i>	2	3.666
<i>2 Varieties</i>	12	13.691	7. Egg Plant		
3. Cabbage			7.1 Saurabh	2	31.000
3.1 Green Coronet	6	34.785	7.2 N. Hybrid	2	37.000
3.2 Zenith	6	34.109	<i>2 Varieties</i>	4	34.000
<i>2 Varieties</i>	12	34.447	8. Okra		
4. Tomato			8.1 Arka Anamika	4	10.050
4.1 Meghna	1	82.000	8.2 MBHS #8	4	12.650
4.2 SC-3	1	36.000	<i>2 Varieties</i>	8	11.350
4.3 SC-1	1	38.000	9. Cucumber		
4.4 Karna	1	37.000	9.1 B. Local	4	24.900
4.5 Naveen 2000+	1	35.000	<i>1 Variety</i>	4	24.900
4.6 Naveen 2000	1	40.000	10. F1 Maize		
4.7 Avinash-2	1	70.400	10.1 Bioseed 8196	4	4.499 (grain yield)
4.8 Manisha	2	59.500	10.2 Pioneer 3056	4	5.777
4.9 Krishna	1	10.500	<i>2 Varieties</i>	8	5.138
4.10 Naveen	3	48.800	11. Capsicum		
4.11 Rashmi	8	13.876	11.1 Bharat	2	10.750
4.12 Ramya	5	18.383	<i>1 Variety</i>	2	10.750
4.13 Rupali	8	16.660			
<i>13 Varieties</i>	34	38.932			

OFD Yield Summary 1998/1999

District Syangja

Crop/Variety	# of Location	Yield mt/ha	Crop/Variety	# of Location	Yield mt/ha
1. Potato			7. Cucumber		
1.1 NSI 17	4	30.034	7.1 Bhaktapur Local (with polypotting/Transplanting)	7	42.833
1.2 NSI 7R	4	20.427	<i>1 Variety</i>	7	42.833
<i>2 Varieties</i>	8	25.230	8. Bitter gourd		
2. Cauliflower			8.1 C. Long	1	13.333
2.1 Kibo giant	5	14.200	<i>1 Variety</i>	1	13.333
2.2 Snow ball 16	5	8.038	9. Sponge gourd		
<i>2 Varieties</i>	10	11.119	9.1 Taroi	4	12.403
3. Cabbage			9.2 S. Black	4	12.159
3.1 Green Stone	4	27.347	<i>2 Varieties</i>	8	12.281
3.2 T 621	2	19.5	10. Zukini		
3.3 Green Coronet	2	30.427	10.1 Zukini tin	4	45.250
<i>3 Varieties</i>	8	25.758	10.2 Fresh green	4	9.850
4. Tomato			<i>2 Varieties</i>	8	27.550
4.1 Karna	2	31.640	11. French Bean		
4.2 Arjun	2	18.766	11.1 K. Wonder	5	11.608
4.3 Ramya	4	25.791	11.2 Four Season	5	10.444
4.4 Manisha	2	45.416	<i>2 Varieties</i>	10	11.026
4.5 Avinash-2	2	33.000	12. Radish		
<i>5 Varieties</i>	12	30.923	12.1 Tokinasi	3	23.891
5. Egg Plant			<i>1 Variety</i>	3	23.891
5.1 Saurabh	3	24.936	13. F1 Maize		
<i>1 Variety</i>	3	24.936	13.1 Bioseed 8196	1	118000
6. Okra			13.2 Pioneer 3056	1	116000
6.1 P. Kranti	4	8.354	<i>2 Varieties</i>	2	117000
<i>1 Variety</i>	4	8.354	14. Capsicum	1	10.00

OFD Yield Summary 1998/1999

District Kaski

Crop/Variety	# of Location	Yield mt/ha
1. Potato		
1.1 NSI 17	3	23.00
1.2 NSI 7R	5	28.06
2 Varieties	8	25.53
2. Cauliflower		
2.1 Serrano	3	23.667
2.2 Kibo giant	3	19.407
2.3 Sb-16	1	11.000
3 Varieties	7	18.025
3. Cabbage		
3.1 Green Stone	2	18.000
3.2 KK Cross	2	18.250
3.3 Zenith	2	18.000
3.4 T 621	2	19.000
4 Varieties	8	18.312
4. Onion		
4.1 N-53 (Nasik red)	1	25.0
4.2 Sun Rojo	1	30.0
2 varieties	2	27.5
5. Cucumber (B. local)		
5.1 DS + Black plastic mulch	1	40.8
5.2 DS + Plastic tunneling	1	47.9
5.3 Transplanted	2	29.4
5.4 DS + P. capping	4	36.751
4 Technologies	8	38.713
6. F1 Maize		
6.1 Pro-Agro 3438	1	7.777
6.2 Bioseed 8196	4	6.863
6.3 Pioneer 3056	6	7.674
3 Varieties	11	7.438
7. Zukini		
7.1 B. House (DSPC)	4	17.0
7.2 Zukini tin (DSPC)	1	21.2
7.3 F. green (DSPC)	4	22.475
3 Varieties	9	20.225
8. Citrus Orchard Management	Continued in FY 1999/2000	

Note : DS = Direct Seeding
 NA = Not available
 DSPC = direct seeding with plastic capping

Result Summary of On-farm Crop Demonstrations Completed in FY 1999/2000

Crop/Variety	Nawalparasi			Rupandehi			Kapilvastu			Palpa			Syangja			Kaski			All Pockets									
	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)	# of Plot	Ave. yield (t/ha)	Highest yield (t/ha)							
4. Radish																												
Lumle red																												
4.1 Tokinasi	2	32	34	4	15	20																						
40 days				4	15	18																						
Early 40 days																												
All varieties planted	2	32	34	16.72	4	15	20	15.67	4	50	55	22.54																
5. Tomato																												
CL 1131																												
Gresco-1																												
Gresco																												
Avinash-2	3	78.16	85																									
Indam 88-2				2	50	60																						
Namdhari	2	67	80																									
Apurva	6	46.08	56	1	50	50																						
Rupali	4	41.75	52	2	50	70																						
Ranya	4	75.87	82	2	50	90																						
Naveen	3	68.66	81	2	50	57																						
Manisha	11	69.54	83																									
Naveen 2000+																												
NS-815				2	50	40																						
Rakshita	1	50	90																									
Abhiman																												
Tropix																												
All varieties planted	33	63.22	83	22.22	12	50	90	18.4	16	66.9	130	28.57	21	24.9	53.5	11.99	12	0	24.27	7	11.6	81.25	21.31	101	43.17	91	21.6	
6. Zucchini																												
Squash																												
Green																												
G. Zucchini																												
All varieties planted																												
7. Onion																												
NS-53	7	32	39																									
Rojo	7	45	48																									
All varieties planted	14	38.5	48	15.1	10	24.4	27	16.67	9	38.33	42.5	21.44	6	34	85	7.73	8	42.6	74	17.4	6	37.5	55	15.92	53	35.8	85	16.01

Note: P.M. = Performance Monitoring

* On going (during reporting period)

Annex X

Result Summary of On-farm Crop Demonstrations¹ Completed in FY 2000/2001 by Pocket

Crop/Variety	Nawalparasi			Rupandehi			Kapilvastu		
	# of farmer	Ave. yield (t/ha)	Highest Location	# of farmer	Ave. yield (t/ha)	Highest Location	# of farmer	Ave. yield (t/ha)	Highest Location
1. Potato									
Cardinal									
Desire									
Kufrijyoti									
MS 42-2									
NSL-6									
TPS	31	29	33 Mejhri						
All varieties planted	31	29		14	16.5		7	24.1	36
2. Cauliflower									
Madhuri									
Kibogiant									
Snow mystique	1	25	42 Shitalnagar						
Snow crown	45	24	30 Shitalnagar						
All varieties planted	46	24.02		8	18		21	21.42	34
3. Cabbage									
Green stone									
Green coronet									
Zenith									
T-621									
All varieties planted				21	33.81		12	57	
4. Tomato									
CL 1131									
Ramya	61	38.43	60 Jhapardi						
Manisha	16	43	50 Beldia						
PK (PP 70)									
PK (PP 710)									
Rakshita									
SC-1									
All varieties planted	77	39.38		24	25		29	53.76	80
5. Radish									
Tokinasi									
All varieties planted				24	25		29	53.76	
6. Onion									
NRN-53									
Nasiki red									
All varieties planted				9	24		15	36.13	42
				9	24		15	36.1	42

Note: P.M. = Performance Monitoring.

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¹ MARD provided only seed and technical advice. * On going (during reporting period).

Annex X (contd.) Result Summary of On-farm Crop Demonstrations¹ Completed in FY 2000/2001 by Pocket

Crop/Variety	Nawalparasi				Rupandehi				Kapilvastu						
	# of farmer	Ave. yield (t/ha)	Yield (t/ha)	Highest Location	2000/2001 P. M.	# of farmer	Ave. yield (t/ha)	Yield (t/ha)	Highest Location	2000/2001 P. M.	# of farmer	Ave. yield (t/ha)	Yield (t/ha)	Highest Location	2000/2001 P. M.
7. Cucumber															
Bhaktapur Local															
Mahoco long	19	18	21	Jhapardi											
Poinset															
Super green															
All varieties planted	19	18	21		18.03										18.5
8. Egg Plant															
Local white															
Neelam long						10	27	30	Dubihawa						
All varieties planted						5	35	40	Sunbarsa	17.6					
9. Okra															
# 12															
Safari															
Barsa															
Sagun															
All varieties planted															
10. Bitter gourd															
Jhallary	2	8	10	Shitalnagar											
White long	4	17	21	Panitanki											
Coimbore long															
All varieties planted	6	14			10.99	5	14			12.98					14.3
11. Asp. beans															
Kashmiri															
All varieties planted						5	15	18	Khairendi						
12. French bean															
Kentucky wonder						5	15			NA					
All varieties planted						5	15			NA					
13. Pointed gourd															
Local	15*														
All varieties planted						23*				NA					
14. Papaya															
Madhubala	3*														
Madhumira	2*														
All varieties planted	5*									21.9					
15. Banana															
William hybrid						17*									
All varieties planted						17*				15.13	5*				25.7
16. Citrus															
Orange, Mandrin															

Annex X (contd.) Result Summary of On-farm Crop Demonstrations¹ Completed in FY 2000/2001 by Pocket

Crop/Variety	Palpa			Syangja			Kaski			All Pockets			# of pocket where OFD conducted or compared	
	# of far-mer (t/ha)	Ave. yield (t/ha)	Highest Location	2000/2001 P. M.	# of far-mer	Ave. yield (t/ha)	Highest Location	2000/2001 P. M.	# of far-mer	Ave. yield (t/ha)	Highest Location	2000/2001 P. M.		
1. Potato														
Cardinal														
Desire														
Kufrijyoti														
MS 42-2														
NSI-6	35	4.4	24	Ganeshtole										
TPS														
All varieties planted	35	4.4	24		8	12.1	20.4	16.63	95	16.31	36	Bhagwanpur, KV	14.8	5
2. Cauliflower														
Madhuri														
Kibogiant	11	13	33	Tintiaap										
Snow mystique														
Snow crown	45	15.62	60	Fulbari										
All varieties planted	56	15.08			43	11.59	18	Jalkeni	176	18.24	60	Fulbari, PP		6
3. Cabbage														
Green stone														
Green coronet														
Zemith														
T-621														
All varieties planted					65	28.7			26.62	21	12.3	16.4		6
4. Tomato														
CL 1131														
Ranya	34	*												
Manisha														
PK (PP 70)	1	*												
PK (PP 710)	7	*												
Rakshita	29	*												
SC-1														
All varieties planted	71				82	20.9			24.08	144				1
5. Radish														
Tokinasi														
All varieties planted					64	24	40	Bharthan						1
6. Onion														
NRN-53														
Nasiki red					17	16	20	Surkaundi						1
All varieties planted					17	16	20		14.92					3

Note: P.M. = Performance Monitoring.

¹ MARD provided only seed and technical advice. * On going (during reporting period).

Annex X (contd..) Result Summary of On-farm Crop Demonstrations¹ Completed in FY 2000/2001 by Pocket

Crop/Variety	Paipa				Syangja				Kaski				All Pockets			
	# of farmer	Ave. yield (t/ha)	Highest Yield (t/ha)	Location	2000/2001 P. M.	# of farmer	Ave. yield (t/ha)	Highest Yield (t/ha)	Location	2000/2001 P. M.	# of farmer	Ave. yield (t/ha)	Highest Yield (t/ha)	Location	2000/2001 P. M.	# of pocket where OFD conducted or compared
7. Cucumber																
Bhaktapur Local																
Maheco long																
Poinset																
Super green																
All varieties planted																
8. Egg Plant																
Local white																
Neelam long																
All varieties planted																
9. Okra																
# 12																
Safari																
Barsa																
Sagun																
All varieties planted																
10. Bitter gourd																
Jhallary																
White long																
Coimbtore long																
All varieties planted																
11. Asp. beans																
Kashmire																
All varieties planted																
12. French bean																
Kentucky wonder																
All varieties planted																
13. Pointed gourd																
Local																
All varieties planted																
14. Papaya																
Madhubala																
Madhumira																
All varieties planted																
15. Banana																
William hybrid																
All varieties planted																
16. Citrus																
Orange, Mandrin																

Note: P. M. = Performance Monitoring.

¹ MARD provided only seed and technical advice. * On going (during reporting period).

Agro-vets Operating in the MARD Project Pockets, April 2001

SN	District	Agro-vet	Transaction Annual (NRs)	Quantity of Seed Sold (Dec-Mar) (kg)
1	Nawalparasi	1.1 J. B. Agro-vet Centre	102.600	3,113.00
		1.2 M. B. Veterinary Sewa	30.000	84.45
		1.3 Gopal Agrovet	100.000	123.55
		1.4 Mangal Veterinary	150.000	87.66
		1.5 Bhusal Agrovet	45.000	21.00
		1.6 Srijana Samuhik Agrovet	50.000	38.56
		1.7 Kshitij Agrovet	300.000	94.47
		1.8 Vijaya Veterinary Clinic	265.000	34.90
		1.9 Gyanwali Veterinary Clinic	360.000	30.90
	Sub-Total		1,402,600	3,628.49
2	Rupandehi	2.1 Kisan Malkhad and Bisadi Bhandar	500.000	NA
		2.2 Burma Agro-vet	250.000	NA
		2.3 Siddhartha Agro-vet	500.000	NA
		2.4 Prakash Agrovet	300.000	NA
		2.5 Paswan Agro-vet	300.000	NA
	Sub-Total		1,850,000	NA
3	Kapilvastu	3.1 Gupta Agro-vet	800.000	203.00
		3.2 Puja Agro-vet	200.000	40.10
		3.3 Maurya Beej Bhandar	100.000	27.00
		3.4 Jagan Agro-vet	50.000	1,606.00
	Sub-Total		1,150,000	1,876.10
4	Palpa	4.1 Tintiaang Agro-vet Centre	480.000	1,536.00
		4.2 Surya Agro-vet	180.000	359.30
		4.3 Bhattraai Agro-vet	1,800.000	243.00
		4.4 Shristi Agro-vet	1,200.000	230.50
		4.5 Raj Agro-vet	1,000.000	191.90
	Sub-Total		4,660,000	2,560.70
5	Syangja	5.1 Baral Agro-vet	550.000	NA
		5.2 Mani Agro-vet (A)	700.000	231.10
		5.3 Mani Agro-vet (B)	150.000	NA
		5.4 Kafle Agro-vet	150.000	NA
		5.5 Adhikari Agro-vet	45.000	NA
		5.6 Paudel Agro-vet	40.000	62.20
		5.7 Janasewa Agro-vet	55.000	NA
		5.8 Co-operative Agro-vet	NA	NA
	Sub-Total		1,675,000	293.00
6	Kaski	6.1 Sthaniya Krishi Samagri Bhandar	340.000	178.30
		6.2 Bhagawati Bahudeshiya Agro-vet	260.000	54.30
		6.3 Samajsewi Agro-vet	NA	25.00
		6.4 Neupane Krishi Bhandar	600.000	90.70
		6.5 Krishi Samagri Bhandar	400.000	58.50
		6.6 Samudaik Krishi Bhandar	100.000	5.00
		6.7 Shanta Krishi Depot	100.000	949.90
		6.8 Janapriya Co-operation Depot	130.000	2,058.00
		6.9 Sanjeev Agro-vet Centre	400.000	13.40
		6.10 Kisan Vivid Sewa	100.000	104.00
	Sub-Total		2,660,000	3,537.10
	Grand Total		13,212,60	11,895.70

NA= Not Available