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Homestead Food Production Program in Central and Far-Western Nepal increases food and nutrition security

An overview of program achievements

Helen Keller International/Nepal (HKI/N) has been promoting homestead food production and nutrition education in rural Nepal since 1997, aimed at increasing year-round availability and consumption of foods rich in vitamin A. In May 2002, a project started entitled "Homestead food production for improving micronutrient status of women and children, poverty reduction and promotion of gender equality," which combines homestead gardening with animal husbandry in order to maximize the intake of micronutrients, particularly vitamin A. This bulletin reports on the progress made between May 2002 and Oct 2003.

Helen Keller International currently collaborates with nine local non-government organizations (NGOs) for the implementation of the homestead food production program in nine districts of Nepal. The project described in this bulletin is implemented in four districts in collaboration with four NGO partners. These are the Nepal National Social Welfare Association (NNSWA) in Kanchanpur, the Nepal Red Cross Society (NRCS) in Doti, the Development Project Service Center (DEPROSC) in Nuwakot, and the Society of Local Volunteers' Effort (SOLVE) in Makawanpur. The project is funded by the Netherlands Organization for International Development Cooperation (NOVIB).

The overall goal of the project is to increase the availability and consumption of micro- nutrient rich foods from both plant and animal sources at the household and community level, as well as to empower women by increasing family income and the women's control over resources. The specific objectives of the project are to:

1. Increase production of and access to micronutrient-rich animal and plant foods for daily meals to better meet the nutritional needs of the people
2. Increase family income through the sale of products from both animal and plant sources
3. Ensure better utilization of local resources through community channels
4. Empower women through active participation at all levels of homestead food production and other income generating activities

How the project works

This project works through a model of establishing village model nursery and poultry farms

Definitions of garden types

Gardens are classified as traditional, improved or developed. The following criteria are used:

Traditional garden: Gardens are seasonal, only gourd and traditional type of vegetables, limited varieties, traditional practice and in scattered plots.

Improved garden: Plots are fixed or scattered or mixed, produce a number of vegetables in fixed plots, but not throughout the year.

Developed garden: Produce a wider range of vegetables in fixed plots throughout the year, improved gardening practices.

(VMNPF) and individual household gardeners. The VMNPFs are owned by private farmers within the group and run as a micro-enterprise. Under this approach, each VMNPF will support two groups of 10-20 households each, depending on the area (more in terai than hilly area). These households will get some inputs (such as seeds/seedlings, saplings, poultry), practical training and demonstration from the VMNPF.

Monitoring methodology

The monitoring system collects data from all the village model nursery and poultry farms and 10% of households every four months. For the first round of monitoring, data were collected in March – June 2003 and for the second round during Jul – Oct 2003. The HKI agricultural team conducts the monitoring with assistance from the NGOs. The NGO staff received training on conducting monitoring in the HKI office. The following sampling procedure is followed.

Village Model Nursery and Poultry Farms (VMNPF): All 78 VMNPFs of four NGOs that conducted different activities during this period July – October 2003 were included in the monitoring.

Household Gardens and Poultry production: Data is collected from 10% of households under each VMNPF. A total of 3,018 households are organized under 78 VMNPFs and 300 households were randomly selected for monitoring.

Two questionnaires are used for monitoring - the VMNPF Monitoring Form and the Household Garden and Poultry Monitoring Form. The VMNPF Monitoring Form collects information about the area used for the farm, number of varieties of vegetables, seeds, seedlings and saplings and poultry present in the VMNPF, quantity of seed/seedlings/saplings, egg produced, sold and amount of money earned. Similarly quantity of vegetables, fruits and eggs produced and income generated during this monitoring period. The Household Monitoring Form collects information on type of garden, number of varieties present, quantities of vegetables, egg produced and sold, source of seeds, main caretaker and consumption of fruits, vegetables, eggs.

Table 1. Status of village model nursery (VMN)

Main indicators	1st round (n=78)	2nd round (n=78)
Median size (sq. m.) of nursery	1000	1000
Median # vegetable varieties present	14	15
Median # Vit. A rich vegetable varieties present	5	9
Median # of seedling varieties present	2	4
Median # of fruits sapling varieties present	0	2
Median # of multi-purpose tree sapling varieties present	1	2
Median # of vegetable varieties produced in last 3 months	17	18
Median # of seed crop varieties produced in last 3 months	3	5
Median # of seedling varieties produced in last 3 months	4	6
Median # of fruits sapling varieties produced in last 3 months	0	1
Median # of multi-purpose tree sapling varieties produced in last 3 months	0	2
Median money (NRs.) earned in last 3 months by selling vegetable, seed, fruit, seedling, sapling (data from all VMPFs)	1357	2220

RESULTS

Village Model Nursery and Poultry Farm (VMNPF)

Table 1 shows many improvements of the village model nursery's vegetable and fruit production between the first and the second round of monitoring. The median size of the nurseries is 1000 square meters, the minimum recommended size. While the number of vegetable varieties grown increased from 14 to 15, the number of vitamin A rich vegetables increased from 5 to 9. Similarly, the seedling production increased from 2 to 4 varieties. As there were no fruit sapling varieties in VMN in the first round monitoring, this issue was immediately addressed, which resulted in 2 varieties of fruit sapling in second round monitoring. The amount of money earned through the sale of vegetable, seed, fruit, seedling and sapling increased by 64%.

Figure 1. Change of gardening practices in first and second round monitoring.

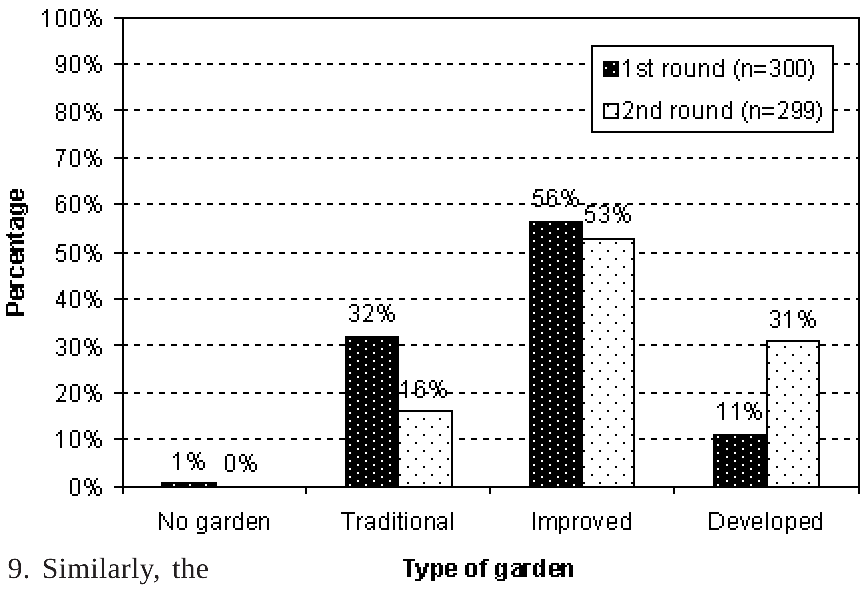

Table 2 shows the data about the VMNPF's poultry rearing and consumption. The median area of poultry shed has been increased from 9 to 15 square meters and the proportion with a well-constructed poultry shed increased. This shows the interest of the VMNPF owners to raise poultry.

While the number of poultry kept decreased from 12 to 9, the production of eggs as well as the income from rearing poultry increased. There may be two reasons for the reduction of the number of poultry kept that occurred. Some of the VMNPF owners think that keeping chickens for a long time does not benefit them. And, the second round of monitoring coincided with *Dashain* (the biggest festival in Nepal) when most rural households consume chicken/meat. With regard to productivity, this increased from 55% of VMNPF producing eggs to 99%. The number that earned money nearly tripled and the amount earned per farmer more than tripled. The proportion of children, mothers and/or families of the VMNPF that consumed eggs the previous week increased from 40-53% to 76-87%.

Table 3 shows that >95% of all VMNPFs earned money through their home garden and poultry activities.

Table 2. Status of Poultry production at VMNPF

Main indicators	1st round (n=78)	2nd round (n=78)
Median area (sq.m) of poultry shed	9	15
Having well constructed poultry shed	46%	65%
Median # of poultry	12	9
Median # of local poultry	2	3
Median # of improved poultry	11	7
% of VMPF produced egg in last 2 months	55%	98.70%
Median # of eggs production the last 2 months in all VMNPF	15(n=69)	170(n=78)
Median income (NRs.) from selling poultry and eggs in last 2 months	375(n=27)	1205(n=77)
% of VMPF's children that consumed eggs last week	39.70%	75.60%
% of VMPF's mothers that consumed eggs last week	42.30%	83.30%
% of VMPF's families that consumed eggs last week	52.50%	87.20%
Median # of eggs consumed by children in last week	4 (n=31)	5(n=59)
Median # of eggs consumed by mother in last week	2 (n=33)	2(n=65)
Median # of eggs consumed by total family in last week	8 (n=41)	10(n=68)

Note: Data on egg production were only from 69 VMNPFs.

Table 3. Percent of VMNPF earning money from garden-nursery and poultry activities, by district (data from second round of monitoring)

District (NGO)	No. of VMPF	% of HH that earned money from	
		HG	Poultry
Doti (NRCS)	20	90%(18)	100%(20)
Kanchanpur (NNSWA)	25	100%(25)	96%(24)
Makawanpur (SOLVE)	13	100%(13)	92%(12)
Nuawakot (DEPROSC)	20	100%(21)	100%(20)
Total	78	97%(77)	97%(77)

Table 4. Production of vegetables and fruits in home garden and income

Main indicators	1st round n=298	2nd round n=299
Median size (sq. m) of home garden	62	90
Median # of vegetable varieties present in HG	9	9
Median # of vitamin A rich vegetable varieties present in HG	3	5
Median weight (kg.) of vegetable produced in last 2 months from those hh who	100(n=297)	130(n=299)
% of HH sold vegetable in last 2 months (from all HH)	17.60%	49.40%
Median amount (NRs.) of money earned by selling vegetables in last 2 months	275(n=53)	383(n=148)
Median # of fruit plants in the HG	3(n=298)	2 (n=299)
% of HH sold fruits in last 2 months (from all HH)	4%	11%
Median amount (NRs.) of money earned by selling fruits in last 2 months	250 (n=12)	100(n=34)

Table 5. Characteristics of home gardening

Main indicators	1st round	2nd round
Main source of vegetable consumption in last 2 months	**n=300**	**n=299**
Own garden	96.3%(n=289)	98%(n=293)
Market	2.3%(n=7)	1.3%(n=4)
Neighbor/gift	1.3%(n=4)	0.7%(n=2)
% of hh produced vegetable in last 2 months (from all HH)	99.3%(n=298)	100%(n=299)
Main purpose of vegetables production in the HG	**n=298**	**n=299**
Consumption	98.3%(n=293)	99.7%(n=298)
Sell	1.7%(n=5)	.3%(n=1)
Responsible person for keeping money earned from garden (by selling veg & fruit)	**n=60**	**n=155**
Husband	15%(n=9)	7.7%(n=12)
Wife	66.7%(n=40)	88.4%(n=137)
Others (Father and mother in law and grand parents)	18.7%(n=11)	2.2%(n=6)
Responsible person for spending money earned from garden	**n=60**	**n=155**
Husband	30%(n=18)	26.5%(n=41)
Wife	50%(n=30)	69.7%(n=108)
Children	1.7%(n=1)	.6%(n=1)
Others (Father and mother in law and grand parents)	18%(n=11)	3.2%(n=5)
Main use of money earned by selling vegetables and/or fruits	**n=60**	**n=155**
Food	43.3%(n=26)	81.3%(n=126)
Cloths	10%(n=6)	2.6%(n=4)
Education	21.7%(n=13)	8.4%(n=13)
Medicine	6.7%(n=4)	
Saving	5%(n=3)	
Social activities		3.2%(n=5)
Others (housing, amusement, productive, credit, animal feed, soap, kerosene)	13.3%(n=8)	4.5%(n=7)

Table 6. Proportion of mothers and children under 5 years (6-59 months) that consumed fruits or vegetables in the last three days and on how many of those days

Details	1st round (n=300)	2nd round (n=297)
Mothers consumed		
DGLV	71% (2)	99% (3)
Red/Orange/Yellow vegetable	17% (1)	60% (2)
Red/Orange/Yellow fruits	12% (2)	40% (1)
Children aged 6-59 months consumed	(n= 221)	(n= 225)
DGLV	53%(2)	92% (3)
Red/Orange/Yellow vegetable	12% (1)	60% (2)
Red/Orange/Yellow fruits	10% (2)	42% (1)

Household production and consumption

Figure 1 shows that there was only one household without a garden at the first round of monitoring and that by the second round of monitoring at least one-third had upgraded their gardening practices from traditional to improved (or developed) or improved to developed (see box for definition of garden types).

Table 4 shows the changes in the homestead garden between first and second round monitoring. The median size increased from 62 to 90 square meters. Though the varieties of vegetables grown are the same in both rounds, the median numbers of varieties of vitamin A-rich vegetables increased from 3 to 5 and productivity has increased as well. Similarly, the number of households selling vegetables has increased, from 18% in the first to 49% in the second round and the amount earned also increased by nearly 40%. This is encouraging and shows the increase of production. The proportion of households that sold fruit increased from 4% to 11%.

Table 5 presents further information about the homestead gardens. For more than 95% of households in both rounds, their own garden was the main source of vegetables consumed, and less than 2% had selling as the main purpose for having a garden. However, the proportion of households that sold some of their produce increased by 250% and for the majority of these households women were responsible for keeping the money earned and spending it. Most of the money was used for buying food items.

Table 6 shows the proportion of mothers and children that consumed vegetables and/or fruits in the last three days and for those that did on how many of those three days they did. The number of mothers and children that had consumed vegetables and fruit during the last three days had increased very much between the two rounds, particularly for red/orange/ yellow fruits and vegetables. For vegetables, the frequency during those three days had also increased, while for fruits it had decreased. The latter may be due to the availability of mango during the first round of the activities for those that consumed fruits then. Table 7 compares household poultry production between first and second round. While the number that kept poultry had decreased somewhat, the number of chicken kept increased. This indicates that households started hatching chicks. The proportion that was reared by scavenging decreased by more than 50%, while semi-scavenging and confined to poultry shed increased.

Figure 2. Percent of household, mother and children consumed egg in last week.

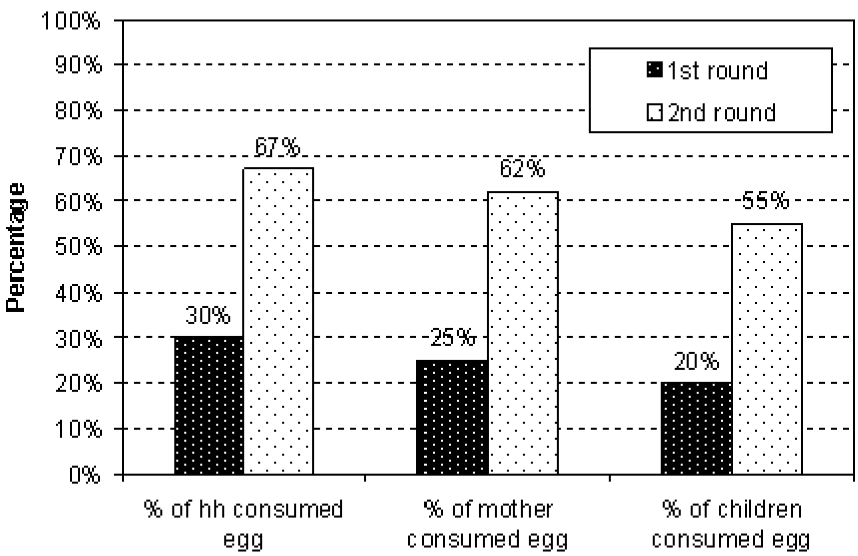

Table 7. Change in status of poultry production in the household

Description	1st round (n=300)	2nd round (n=299)
% hh having chicken	84%	80%
Median # of chicken	4	6
Species of chicken	**n=252**	**n=239**
Local only	19%	20%
Both local and improved	81%	80%
Type of chicken raring practice		
Scavenging	44%	19%
Semi-scavenging	45%	64%
Confine in poultry shed always	11%	17%
Main caretaker of chicken rearing		
Husband	2%	16%
Wife	79%	75%
Children	4%	7%
Others (Mother in law, father in law, All family member, grand parents etc.)	15%	2%
	n=300	**n=299**
% hh produced eggs in last 2 months	48%	77%
Median # of egg production in last 2 months	20	61
% of hh earned money by selling poultry product in last two months (from all	18%	58%
Median amount of money earned by selling poultry & eggs in last two months	187.5(n=54)	322.50(n=174)
Main use of money earned by selling poultry & eggs	**n=54**	**n=173**
Food	44%	71%
Clothing	7%	9%
Housing		6%
Education	23%	8%
Medicine	6%	1%
Saved	7%	2%
Others (Amusement, Productive work, Social activities, Loan repayment)	13%	3%

Table 8. Egg and liver consumption by the household members in last month

Description	Monitoring 1st round (n=300)	Monitoring 2nd round (n=299)
1. Median # of eggs consumed by household in last week	5(n=91)	6(n=200)
2. Median # of eggs consumed by mother in last week	2(n=75)	2(n=184)
3. Median # of eggs consumed by children in last week	2(n=59)	2(n=165)
4. % of HH by consumption of liver in last week	26%(n=78)	39%(n=113)

During the preceding year of program implementation, gender training was conducted with the households in which it was discussed how husband and wife could share the work involved in the poultry rearing activities. This gender sensitization appears to have been effective as the proportion of husbands that shared the workload increased from 2% in the 1st round to 16% in the 2nd. Both the proportion of households that produced eggs as well as the number of eggs produced in the last 2 months increased markedly between the first and the second round (from 48% to 77% and from 20 to 61, respectively). Hence, the amount of money earned and the number of households that earned money also increased very much. The money earned was largely spent for food.

Figure 2 shows the proportion of household members that consumed eggs in the last week and table 8 shows the number of eggs, and liver, consumed in the previous week. The number of households, mothers and children that ate eggs during the previous week more than doubled, with 55-67% having consumed the previous week during the second round. And on average, mothers and children ate 2 eggs per person per week. The proportion of households that consumed liver during the previous week increased from 26% to 39%.

CONCLUSIONS

A large amount of progress has been made between the first and second round of monitoring, which was only a 3-4 month period. It needs to be mentioned that all VMNPFs and households now have access to water, which has increased productivity.

VMNPF

The production of vegetables and eggs increased and so did the amount of money earned from selling produce. This increase in income strengthens the program. The decrease in the number of poultry kept needs to be addressed, but the fact that the size and the quality of the poultry shed has improved is very positive. The production of fruit sapling and multi-purpose tree has been started. Consumption of vegetables, fruit and eggs all increased markedly.

Households

For almost all households, the garden is the main source of vegetables, and consumption is the main purpose of keeping the garden. All aspects of gardening improved (type of garden, its size, varieties grown, income earned). And so did consumption, with almost a doubling of the number of children that ate vegetables and fruits during the previous three days. Egg production also increased substantially. But the slight decrease of the number of households that kept poultry needs to be countered.

(See back page for Recommendations)

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RECOMMENDATIONS

VMNPF

1. The knowledge and capacity for producing poultry, seeds, seedlings and saplings (of fruit and multi-purpose trees), for distribution to households, needs to be increased.
2. Linkages need to be made between local veterinary people and VMNPF owners in order to obtain poultry vaccines which can also be made available to households.

Households

1. Number of poultry birds kept per household needs to be increased through hatching at the local level and need to supply some more improve breed where necessary
2. Need more guidance on how to prepare poultry feed by themselves and feed it regularly so that egg production will increase.
3. More technical supervision and follow-up support is needed at the household level for year-round production of vegetables and fruits (developed garden).
4. Need to strengthening the nutrition education activities at the women group level to increase awareness and create for micronutrient rich foods.

N E P A L

Helen Keller International Nutrition Bulletin

For information and correspondence, contact:

Helen Keller International/Nepal
P.O. Box: 3752, Minbhawan
New Baneshwor, Kathmandu
Nepal
Telephone: (977-1) 4480921 / 4493344 / 4493432
Fax: (977-1) 4480234

Mr. Aminuzzaman Talukder, Country Director
E-mail: zaman@hkinepal.wlink.com.np

Mr. Gopi Prasad Sapkota, Project Manager
E-mail: gopi@hkipc.wlink.com.np

Mr. Vinod Kumar Barai
Technical Officer – Agriculture
E-mail: vinod@hkipc.wlink.com.np

Ms. Sharmila Shrestha
Data Processing Officer
E-mail: sharmila@hkipc.wlink.com.np

Helen Keller International
Asia Pacific Regional Office
20 Cross Street, #02-13 China Court
Singapore
Telephone: (65) 62361972 / 63274293
Fax: (62-21) 7198148

Dr. Martin W. Bloem, Senior Vice President,
Chief Medical Officer & Regional Director,
Asia Pacific
E-mail: mwbloem@singnet.com.sg

Dr. Regina Moench Pfanner, Regional Coordinator
E-mail: remoench@singnet.com.sg

Dr. Saskia de Pee, Regional Scientific Advisor
E-mail: sdepee@compuserve.com

Federico Graciano, Communications Officer
E-mail: graciano@singnet.com.sg

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