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INTEGRATED NUTRITION GARDEN—IMPORTANT COMPONENT OF DIVERSIFICATION

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ABSTRACT

Paddy-wheat rotation for economic security has directly or indirectly caused a lot of ecological, economical and health problems. A healthy person should consume 300g vegetables, 30-50g fruits and 85 g pulses per day. However, in the rural areas there is average consumption of 180g vegetables, 40g pulses and negligible quantity of fruits per individual per day. Majority of the farmers purchase vegetables from the market for their daily use, that too fully laden with heavy doses of insecticides and pesticides.Vegetables produced in nutrition/kitchen gardens will be clean, free from pesticide residue and thus safe for health. There are 894000 operational land holdings in Punjab having more than 1ha land. If all these families adopt this nutrition garden than 335250 acre land can be diversified. We can get an average income to the tune of 25388/- from 1500 m^2 area using family labour only.

Key words : *Integrated nutrition, diversification, garden, economics.*

Human diet in rural areas are strikingly cereal based and consumption of even low cost protective food is far from satisfactory. Main reason behind, is the prevelance of paddy-wheat rotation for economic security. The monocycle of these crops has directly or indirectly caused a lot of ecological, economical and health problems. According to Indian Council of Medical Research, a healthy person should consume 300g vegetables, 30-50g fruits and 85g pulses per day. However, in the rural areas there is average consumption of 180g vegetables, 40g pulses and negligible quantity of fruits per individual per day (1). In Punjab, half of the number of childern below the age of four was malnourished and 60 per cent womens were anemic (2). Reason behind can be less availability and costliness of pulses and vegetables. It was observed that majority of the farmers purchase vegetables from the market for their daily use, that too fully laden with heavy doses of insecticides and pesticides. We should plan to produce vegetables in our backyards using the available fresh water as well as kitchen waste. Vegetables produced in nutrition/ kitchen gardens will be clean, free from pesticide residue and thus safe for health. There are 894000 operational land holdings in Punjab having more than 1ha land (3). If all these families adopt this nutrition garden than 335250 acre land can be diversified. Keeping all these points in view, Integrated nutrition garden model was developed by Punjab Agricultural University, Ludhiana.

In this model 500 m^2 area was utilized for vegetables and 1000 m^2 for pulses. Fruit plants were grown around the boundry of the nutrition garden. Efforts were made to evaluate the profitability and viability of this model at farmers field.

MATERIALS AND METHODS

50 farm womens were selected from four villages of district Jalandhar and were provided free seed of different vegetables and pulses along with technical know- how. Sowing of kharif vegetables was done in March-April, 2008 on 20 equal plots of one marla (25 m^2). In the 1000 m^2 area moong and mash was sown on 500 m^2 each. All the packages and practices recommended by PAU was followed for growing vegetables and pulses. Similarly, sowing of rabi vegetables and pulses (gram and lentil) were done in October- November, 2008. Yield data of the different vegetables and pulses were recorded regularly to work out the economic feasibility of the nutrition garden. In 2010, survey was conducted to study the change in consumption pattern after adoption of nutrition garden.

RESULTS AND DISCUSSION

Yield of different vegetables and pulses were depicted in Table-1. Average yield of different kharif vegetables were 65 kg/plot in bottle gourd, 22 kg/plot in bitter gourd, 45 kg/plot in summer squash, 20 kg/plot in round melon, 70 kg/plot in pumpkin, 35 kg/plot in cucumber, 25 kg/plot in okra and so on. Similarly, in rabi season

Table-1: Economics of kitchen garden.

Vegetable	Average yield (kg/m^2)	Rate (Rs/kg)	Turn over (Rs)
Kharif Vegetables			
Bottle gourd	65	12	780
Bitter gourd	22	20	440
Round melon	20	18	360
Sponge gourd	30	18	540
Cucumber	70	10	700
Long melon	40	12	480
Brinjal	130	12	1560
Okra	50*	20	1000
Cowpea	25*	25	625
French bean	20	20	400
Radish	130*	20	2600
Pumpkin	70	15	1050
Wanga	20	10	200
Chillies	70*	10	700
Summer squash	45	15	675
Rabi Vegetables			
Cauliflower	60	5	300
Cabbage	60	4	240
Raddish	150*	4	600
Carrot	150*	5	750
Turnip	60	5	300
Spinach	150*	10	1500
Tomato	75	10	750
Potato	67	5	335
Peas	15	15	225
Onion	75	15	1125
Garlic	50*	25	1250
Brinjal	100	4	400
Methi	10	2	20
Methe	11	2	22
Coriander	11.5	6	69
Chinese cabbage	32.5	3	97
Pulses			
Kharif pulses			
Moong**	40**	40	1600
Mash	42**	40	1680
·Rabi pulses			
Gram	40.5**	30	1215
Lentil	20**	40	800
Total			25388/-
*Yield from 50 m^2			
** Yield from 500 m^2			

Table-2: Consumption of vegetables and pulses per capita per day

Crop	Earlier consumption (g/capita/day)	Present consumption (g/capita/day)	Increase (g/capita/day)
Pulses			
Moong	10	15	5
Mash	10	15	5
Gram	15	18	3
Lentil	5	9	4
Vegetables			
Green	45	80	35
Leafy	45	75	30
Root	60	90	30
Others	30	45	15

yield data was recorded as 75 kg/plot in radish, 30 kg/plot in turnip, 30 kg/plot in cabbage and cauliflower, 25 kg/plot in garlic. In case of kharif pulses i.e moong and mash the yield was 40 kg and 42 kg/500 m^2. Similarly in case of rabi pulses i.e gram and lentil yield was 40.5 kg and 20kg/500 m^2 respectively. Lower yields were observed than potential yield both in vegetables and pulses reason behind was, no or limited use of fertilizers and chemical sprays.

Economics of the nutrition garden was calculated by considering the prevailing prices of the vegetables and pulses the market and average yield. Total income from 1500 m^2 nutrition garden model was Rs.25388/-. While working economics we exclude seed and labour cost as seed was provided free in the project and further home labour was utilized for the managment of the garden. So we can say that approx. Rs. 26000/- can be saved per year from spending on vegetables and pulses for 8 family members.

All the 50 respondents were asked about the consumption pattern of vegetables and pulses before and after the adoption of nutrition garden to study the impact of this nutrition garden (Table-2). Their seems to be significant increase in consumption of vegetables and pulses. This increase was 15-35 g/person/day in case of vegetables and 3-5g/person/day in pulses. Although consumption level was not up to the level of recommended but still results were promising. So we can think of further improvement in diet pattern by adoption of this nutrition garden model.

CONCLUSION

With the growing pressure of population and limited scope increasing the income through crop production the diversification in agriculture is being considered necessary and imperative (4). Nutrition garden concept which can meet the vegetable and pulse requirement can help in diversification also. We can get an average income to the tune of 25388/- from 1500 m^2 area using family labour only. So in this way nutrition garden is economically viable. Consumption level per capita per day of vegetables and pulses also increased by 3-5g and 15-35g respectively after the adoption of nutrition garden. In Punjab, it is observed that there is 3.5 % diversification in area with the adoption of nutrition gardens (5). Overall, we can say that, Integrated nutrition garden unit is good alternate for diversification, nutritional security, profitable and viable.

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