

Scope of non-traditional Vegetables for profit Maximization in Vegetable Cultivation-An Emerging Need for Hill Economy

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Abstract—Vegetable crops provide food and nutritional security to millions of people and the cultivation is a profitable venture that assured better returns to the farmers in terms of higher yield, better quality produce, more labour engagement and higher economic return. However selection of less demanding crop and cultivation of same crop(s) in a larger area having common market results poor return due to market glut. Crop diversification through selection of high value and low volume vegetables which are nutritionally rich, fit to local climate, high market demand and suitable for cultivation during normal as well as off-season can immensely changed the present scenario of vegetable cultivation. Celery, parsley, baby corn, lettuce, sprouting broccoli, brussels sprout, chinese cabbage etc have enormous potential in the hilly track. Again selection of non-traditional varieties of existing vegetables can also bring see change in economic return of vegetable crops such as red cabbage, black carrot, purple cauliflower and broccoli, pink radish, coloured capsicum etc. In the present work we have demonstrated some potential non-traditional vegetable and newly introduced varieties of existing vegetables that will ensure profitability, prosperity and economic development in the hill farming.

Key words: High value vegetables, Crop diversification, economic growth and hill farming.

Introduction

Vegetable crops are rich and cheaper source of natural protective carbohydrates, protein, Fat, Minerals, Vitamins, dietary fibre, roughages as well as several amino acids which are essential for maintaining good health and curing nutrition disorders. Several coloured vegetables are rich source of anti oxidant and anti-cancerous properties such as carrot, purple cabbage/cauliflower, lycopene of tomato and watermelon, sinigrin of cole crops (3). Apart from food diversity they provide phytochemicals in diets. India is the second largest producer of vegetables in the world after China. In India, West Bengal ranks first in area and production of vegetables. Vegetable crops produce 4-5 times more biomass compared to

cereals and pulses and most of them are short duration in nature hence 3-4 crops can be taken in a year. They are highly suitable for intercropping/mixed cropping and generated more employment. The varied agro-climatic conditions existing in hilly terrain provide a vast scope for the production of a wide range of vegetable crops and their seed both for tropical and temperate origin. A wide range of diverse vegetable crops can be grown in one part or the other. With the availability of skilled and cheap labour, technical expertise, small and marginal land holdings and urged for crop diversification can bring a sea change in profitability, prosperity and economic development of the vegetable growers of hill. Again selection of non-traditional varieties of existing vegetables can also bring higher economic return such as red cabbage, black carrot, purple cauliflower and broccoli, pink radish, coloured capsicum etc. They helps to create variation in the Indian cousins. Measures for production and productivity enhancement by adopting improved cultivars, standard package and practices and dissemination of success technologies for wider areas will create opportunities for employment generation and better remuneration from vegetable cultivation.

Major causes of non profitability in vegetable cultivation

Most of the farmers take up traditional cultivation practices. Lack of improved and adequate production technology packages for year-round cultivation of vegetables causes low yield and poor return. Farmers mostly rely on local varieties due to non availability of improved varieties/hybrids for crop cultivation. Adverse climatic conditions in some months hampers the cultivation of vegetable crops in the open field, specially vegetables grown in summer and rainy season are seriously affected by drought or heavy rainfall. Price instability or seasonal fluctuations in the price of fresh vegetables causes' low return of the produce.

Opportunities for crop diversification through non traditional vegetables

The vegetables which have high value, nutritionally rich, suitable for cultivation in the hill climate, and high market demand both in domestic market and export market in normal season and as well as in off-season need to be identified. Crops like lettuce, leek, celery, parsley, baby corn, sugar pea, golden squash (zucchini), sprouting broccoli, brussels sprout, chinese cabbage, cherry tomato etc have enormous potential in the hilly track(1, 5). Encouraging seedling production of high value vegetable and seed production venture of these crops will attract rural youth for wider adoption of these vegetables. Not only fresh vegetable, preparation of processed and preserved product of these vegetables can bring opportunities for agribusiness development and earning valuable foreign exchange for the country (2,6).

Introduction of new varieties of existing vegetables

People are gradually realizing the importance of coloured vegetable as source of antioxidant, dietary fibre and nutraceuticals that encouraging the rapid development of diverse coloured vegetables in the daily diet. The market for coloured vegetable is growing very fast throughout the world. India has vast potential to compete with the emerging domestic and export market of coloured vegetables. Selection of varieties for different coloured vegetables such as purple or yellow cauliflower, red cabbage, black carrot, red lettuce, red or yellow capsicum, pink or purple radish etc can bring profitability and higher return from vegetable cultivation(4).

Diversification of seasonal vegetables

Several vegetable prefers cooler climate for quality production. By adjusting planting time as per the demand of the market can fetches higher return from vegetable cultivation. Hill environment is highly suitable for cultivation of garden pea and French bean and cultivation is possible almost round the year particularly during summer and raining season have greater opportunity for supplying to the plains where these crops are treated as off-season high value crop. Selection of temperate varieties of the radish ,carrot ,beet ,turnip have high demand in the five star hotel and different shopping mall as well as export demand in the neighbouring countries like Bangladesh ,Bhutan and Nepal.

Utilization of protected structure for off-season vegetable production

Off-season' cultivation of different high value and more demanding crops under protected cultivation in green houses, poly house, shade net, poly tunnels etc is a highly remunerative venture as it provide quick returns to the farmer per unit of area. Production and productivity of crops and profitability of farmers become much higher compared to traditional cultivation. Protected cultivation helps to generate income round the year. Production of vegetables under protected conditions involves protection of production stage of vegetables mainly from adverse environment conditions such as temperature, hails, scorching sun, heavy rains, snow and frost (7). The cultivation of vegetables in net house can play a better role in improving quality, advancing maturity as well as increasing fruiting span and productivity.

Future thrust areas

To encourage large scale cultivation of nontraditional vegetable and high value vegetables awareness programme should be promoted by the Govt. department, Universities, private companies, NGOs, farmers club and associated organization. Proper skill development training farmers on the production practices, nutrient requirement, management of disease and pest of different non-traditional vegetable will be create interest among the growers for these crops. Credit facilities from different financial institution like bank etc and easy access to different production inputs as well as assured availability of good quality seed of these vegetables at affordable prices will definitely encourage large of farmers for cultivation of these crops. Promotion of organic production of these vegetable will further increase the return and profitability of these crops for domestic and as well as export market.Exposure visit of the hill farmers to similar farms and meeting of successful farmers and interaction on their ways of crop management and marketing strategy will benefit the new growers and develop more confidence to start the new venture.

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