

DEVELOPMENT OF HORTICULTURE PRODUCES IN BIHAR: A CONCEPTUAL STUDY

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INTRODUCTION

Bihar state, endowed with too much fertile plane land and subtropical climate. State also hold a vast potential for growing a large number of horticulture crops. Many tropical and subtropical fruits, vegetables and other crops including Potato, Mango, Litchi and Banana are grown in the state with great success and ease. Currently vegetables and fruits cover 1.15 million hectares accounting for nearly 19.5 percent of the net cropped area and 14 percent of gross cropped area. Horticulture crop provided food security, prevents malnutrition including of perennial source of income of the households. So, it is a dynamic tool for increasing per capita income including ecological sustainability in the state as well as in Darbhanga district.

PROFILE OF PRODUCT PLANNING IN BIHAR

The concept of produce planning in Bihar for each district including Darbhanga district that is the careful selection of the horticulture crops and varieties to be grown with market ability in mind is an important point at the time of cultivation start and even for small farmers. providing this advice to the farmers is very essential to enable them to withstand the competition in the market. National Horticulture Mission (NHM) is being implemented for product planning for each districts in Bihar to promote holistic growth of the horticulture sector covering vegetables, fruits and other crops to increase area under vegetables and fruits, enhance production and productivity of horticultural crops¹. It also create infrastructure, technology, marketing facilities, processing industries, proper marketing linkage and storage facilities, etc.

Therefore, for achieving the targeted objectives the following product planning are being followed:

i) Pre-harvest Care :

Pre-harvest care is virtually a non-monitory skill for harvesting the horticulture crop when it is most appropriate and is in the situation to be sold at better price in the state or out of state. The adequacy of such characteristics can be colour, size, level of maturity and the seasonal preferences & pre-harvest management of the crop disease free and pest free.

ii) Grading and Integrated Pest Management :

All farmers are required to be educated and trained about the grading and standardization of the produce-weather crops, fruits, vegetables and other crops comparative advantages of grading in monetary terms would help in convincing them about comparative gains. Chemical pesticides should be replaced by vigorous promotion of the integrated Pest management (IPM) approach. This technology should be provided to every farmer in each district including Darbhanga in the state.

iii) Organic Farming :

In areas with high dependence of fertilizers and other inputs of these should be discouraged to reduce cultivation costs, protect the environment, and increase the export market acceptance of farmers produce. Crop straw and other agro-wastes may be substituted. Vermiculture should be identified as a thrust activity and vermiculture technology must reach every farmer and every farm must have a vermin-compost in Bihar. Since much of traditional horticulture in the has relied on organic methods. Bihar has strength in this area in each district.

iv) Mechanization and Conservation :

It should be promoted for timely sowing, harvesting and post-harvest handling of crops. Priority should be given to zero tillage machines, raised-bed planters, small combine-harvesters, mobile harvesting, units of orchards, graders, winnowers, power tillers and other new machines.

v) Processing and Cool Chains :

If adequate awareness among growers about existence of processing facilities and their benefits is created and such facilities are offered at a low cost, it may help in reducing the post-harvest losses and value

addition of their produce considerably. There is also an emergent need of stepping out processing and cool store facilities at the farm level in each district and also for generating awareness among growers about their benefits by organizing regular exhibition and seminar etc. For improvement of supply chain facilities for sorting, grading, packaging, storage and transportation must be promoted to local markets before harvesting.

vi) Marketing Information :

The farmers need information on two aspects of marketing via current price and market arrival information and forecasting of market trends. This information has also to be supplemented with other information about reaching a particular market to get the particular price, arrangements available in the market related to storage, transactional methods, quality requirements etc. Along with the information on spot market, the forward futures market prices are also required to be disseminated to the farmers in the state.

vii) Planning for irrigation and Credit :

There should be planning for irrigation and financial facilities to the farmers before growing horticultural crops in each district of Bihar. Government should provide significant subsidies through several schemes to promote irrigation. So, there is need to planning of modern methods of irrigation like drip and sprinkler irrigation, drip methods can reduce the volume of water can applied to fields by to 70 percent, while increasing crop yields by near about 20-90 percent. But still there is tremendous potential to go way from use of underground water to adoption of such methods by harnessing the vast potential of rain water in Darbhanga District as well as in Bihar.

DEVELOPMENT OF HORTICULTURE IN BIHAR

Planning for both agriculture and horticulture sector in Bihar and India should therefore, be based on holistic strategy to create a conducive environment for the genius of the local inhabitants to avail of livelihood opportunities to significantly raise their quality of life, by making available the infrastructure and linkages necessary for higher economic productivity and sustainable horticultural development in the state². The present scenario shows that survival of farmers, especially small and marginal farmers is challenged by continuously reduce land holdings, decreased subsidies for inputs, increase labour cost, input costs and slow increase in price per unit volume of output of grain-based crops.

According to the old and existing data an important analysis is made on the development of horticulture crops in the state which is furnished below:

(i) Area, Production and Productivity of Vegetables in the State :

The total area of potato crop in the state during 2006-07 was 322.84 thousand hectare which decreased to 319.13 thousand hectare in 2015-16, increasing the production from 6345.52 thousand tonne to 6101.69 thousand tonne during the period from 2006-07 to 2015-16 respectively and productivity also increased from 17.8 to 20.0 during the period from 2006-07 to 2015-16 respectively. Area under onion crop was 48.30 thousand hectare which increased to 54.03, production was 917.87 thousand tonne which increased 1247.34 thousand tonne and productivity increased from 19 to 23 during the period from 2003-04 to 2015-16 respectively. Area under tomato increased from 45.26 thousand hectare to 45.81 thousand hectare production from 588.38 thousand tonne to 1001.01 thousand tonne and productivity from 13.00 to 22.0 during the period from 2003-04 to 2015-16 respectively. Cauliflower used area from 59.80 thousand hectare to 65.71 thousand hectare, production increased from 955.61 thousand tonne to 1003.90 thousand tonne and productivity marginally decreased from 16 to 18 during the period from 2003-04 to 2015-16 respectively. Area under cabbage was 36.50 thousand hectare which increased to 40.52 thousand hectare, increasing the production from 584.14 thousand tonne to 719.81 thousand tonne and productivity increased from 16 to 18 during the period from 2003-04 to 2015-16 respectively in the state. Area under Brinjal was 54.09 which increased to 58.60 thousand hectare, increasing production from 1081.92 thousand tonne to 1241.57 thousand tonne and productivity increased from 20 to 20.69 during the period from 2003-04 to 2015-16 in Bihar. Area under Chilli was 38.27 thousand hectare which increased to 44.80 thousand hectare, production decreased from 459.33 thousand tonne to 418.30 thousand tonne and productivity also decreased from 12 to 9 in Bihar during the period from 2003-04 to 2015-16 respectively. Production of Bottle gourd increased from 403.28 thousand tonne to 631.60 thousand tonne and area which increased from 25.20 tonne hectare to 40.30 thousand hectare where productivity decreased from 16.0 to 16 during the period from 2003-04 to 2015-16 respectively in the state. The area under sponge gourd was 33.32 thousand hectare which was increased to 37 thousand hectare, increasing the production 403.28 thousand tonne to 512.84 tonne and productivity constant from 14 to 14 during the period from 2003-04 to 2012-13 respectively. Area of ridged gourd during the period 2003-04 to 2012-13 was 7.74 thousand hectare which was increased to 8.85 thousand hectare, increasing production form 46.49 thousand tonne to 54.47 tonne and productivity increased from 6 to 6. The area under cucumber was used 1.25 thousand hectare which increased to 3.60 thousand hectare, increasing production from 14.5 thousand tonne to 67.00 thousand tonne and productivity increased from 11.6 to 19 in the state during the period from 2005-06 to 2015-16 severally. Area under Bitter gourd during the period from 2003-04 to 2015-16 was 8.48 thousand hectare which increased to 9.70 thousand hectare, increasing production from 50.90

thousand tonne to 67.30 thousand tonne and productivity increased from 6.0 to 7.0 during the period from 2003-04 to 2015-16 severally in Bihar. The production of Ashgourd was 7.03 thousand tonne which increased to 13.77 thousand tonne, increasing area from 0.30 thousand hectare to 0.57 thousand hectare and productivity marginally increased 2012-13 from 23.4 to 24 during the period from 2005-06 to 2012-13 severally in the state. Overall production of vegetables increased in Bihar.

(ii) Area, Production and Productivity of Fruits in the State :

The area of Papaya was 1.0 thousand hectare in 2005-06 which increased to 1.60 thousand hectare in 2015-16, increasing production from 22.50 thousand tonne to 53.44 thousand tonne and yield increased from 22.5 to 33 in the state during the period from 2005-06 to 2015-16 respectively. The productivity trends of Amla increased from 7.8 to 9 whereas area increased from 1.10 thousand hectare to 1.50 thousand hectare and increasing production from 8.6 thousand tonne to 13.50 thousand tonne during the period from 2005-06 to 2015-16 severally in the state. The area of others fruits was 28.90 thousand hectare in 2005-06 which increased to 32.40 thousand hectare in 2015-16, increasing production from 235.90 thousand tonne to 310.90 thousand tonne and productivity trends increased from 8.1 to 9 during the period from 2005-06 to 2015-16 respectively in Bihar.

(iii) CARG of Vegetables and Fruits in the state :

The Table-3.3 reveals the CARG (Compound Annual Rate of Growth) performance of vegetables and fruits in Bihar during 2007-08 to 2011-12 and 2011-12 to 2015-16. From this table it is clear that the major vegetables annual growth (development) rate of production percentage was the highest for cucumber (10.93), Ashagord (22.81), water melon (12.15), Muskmelon (14.36), Pointed gourd (13.26), sweet potato (15.32) and Colocasia (16.91) during 2007-08 and in 2011-12 to 2015-16 only cucumber has highest rate of production 34.39. Among the major fruits the annual growth rate of production during 2007-08 to 2015-16 was the highest for mango (7.33 percent), banana (4.23 percent), papaya (6.52 percent) and Alma (6.47 percent). Among growth rate of productions of fruits during 2011-12 to 2015-16 was the highest for Guava (13.47) and Papaya (8.47). From the table we find that both area and production over the year of vegetables and fruits show a growing trend. Productivity of different vegetable and fruits crops also showed a rising trends along with rising trends in production and some crops has decling trends.

The study reveals that the area of vegetable crops in Bihar during 2003-04 was 434.34 thousand hectare which increased to 1500.51 thousand hectare in 2015-16, increasing the production from 6647.67 thousand tonne in 2003-04 to 26272.4 thousand tonne in 2015-16. The productivity or yield (Y) was 14.65 in 2003-04 which

increased to 235 in 2015-16. The total area of fruits crops during 2005-06 was 276.30 thousand hectare which increased to 285.18 in 2015-16, increasing the production from 3068.40 thousand tonne in 2005-06 to 4062.37 thousand tonne in 2015-16. The productivity was 11.1 in 2005-06 which increased to 151 in 2015-16.

DISTRIBUTION PRODUCTION OF HORTICULTURAL CROPS IN BIHAR:

The district wise area and production of important vegetables in Bihar is showing in the table-3.4(a) and table-3.4(b) during the period form 2010-11 to 2015-16, area and production of vegetables included potato, onion, cauliflower, Brinjal and other (Vegetable crops) in each districts are given in detail in these tables. The table-3.4(c) the total production of vegetables during the period from 2010-11 to 2014-15, such as in Patna district was 4.8 percent in 2010-11 which decreased to 4.8 percent in 2014-15 During the period form 2010-11 to 2014-15, the total production of districts as in Nalanda (7.7 percent to 8.1), Bhojpur (2.4 percent to 2.4 percent), Buxar (1.5 percent to 1.6 percent), Rohtas (2.3 percent to 2.4 percent), Kaimur (1.2 percent to 1.3 percent), Gaya (2.9 percent to 3.3 percent), Jahanabad (1.1 percent to 1.1 percent), Arwal (0.9 percent to 0.9 percent), Nawada (1.8 percent to 1.8), Aurangabad (2.0 percent to 2.0 percent), Saran (Chhapra) 3.3 percent to 3.5 percent, Siwan (2.8 percent to 2.8 percent), Gopalganj (3.1 percent to 3.1), West Champaran (4.2 percent to 4.0 percent), East Champaran (3.8 percent to 3.8 percent), Muzaffarpur (4.9 percent to 4.8 Percent), Sitamarhi (2.3 percent to 2.3 percent), Sheohar (1.3 percent to 1.3 percent) Vaishali (5.3 percent to 5.6 percent), Darbhanga (3.0 percent to 2.9 percent), Madhubani (3.1 percent to 3.1 percent) Samastipur (3.9 percent to 4.1 percent), Begusarai (3.3 percent to 3.3 percent), Munger (1.9 percent to 1.9 percent), Sheikhpura (1.2 percent to 1.3 percent), Lakhisarai (0.8 percent to 0.6 percent), Jamaui (1.0 percent to 1.1 percent) , Khagaria (1.9 percent to 1.9 percent), Bhagalpur (3.0 percent to 3.0 percent), Banka (1.5 percent to 1.5 percent), Saharsa (2.5 percent to 2.4 percent) Supaul (1.4 percent to 1.4 percent), Madhepura (2.5 percent to 2.3 percent), Purnea (2.6 percent to 2.4 percent), Kishanganj (1.7 percent to 1.7 percent), Araria (1.5 percent to 1.4 percent) and in Katihar (3.6 percent to 2.9 percent) respectively in the state.

It is observed from the above figures that Nalanda has top in rank to produce more vegetable in Bihar as above 8 percent, Vaishali 5.6 percent, Patna and Muzaffarpur 4.8 percent and rest of the districts are producing below 4 percent in the state. The production of all important vegetables is not satisfactory these are increasing or decreasing marginal rate. The total production of these crops was from 146302.20 to 14978.86 tonne where area was from 844977 to 852.09 during the period from 2010-12 to 2014-15 in the state. Both are showing declining trends. So, there should be immidiate action to increase the area for the production of vegetables in each districts in Bihar.

On the other hand, fruits production including mango, guava, litchi, Banana and others fruit are showing in detail in the Table-3.5 (a) and table-3.5(b) during the period from 2010-11 to 2015-16 for each districts in Bihar. The Table-3.5(c) is also highlighting the total production of fruits in Bihar. The total production of fruits in each district is not satisfactory as compared to the previous year from 2010-11 to 2014-15. The level of fruits production from 2010-11 to 2015-16 in the district as 2.4 Patna (3.7 percent to 2 percent), in Nalanda 4.9 percent to 5.2 percent) in Bhojpur (6.6 percent to 2.2 percent), in Buxar (5.2 percent to 1.6 percent), in Rohtas (10.4 percent to 2.6 percent), in Kaimur (4.5 percent to 1.5 percent) in Gaya from 2.2 percent to 1.1 percent, in Jahanabad from 0.9 percent to 0.5 percent, in Arwal from 0.8 percent to 0.4 percent, in Nawada form 1.6 percent to 1.0 percent, in Aurangabad form 2.2 percent to 1.2 percent in Saran (Chhapra) from 2.6 percent to 2.9 percent, in Siwan form 2.3 percent to 2.2 percent, in Gopalganj form 2.1 percent to 2.2 percent during the period from 2010-11 to 2014-15 respectively in these districts.

During the period from 2010-11 to 2014-15 total fruits production increasing or decreasing in the district as in West Champaran from 5.7 percent to 4.4 percent, in East Champaran from 5.5 percent to 4.6 percent, in Muzaffarpur from 4.9 to 10.7 percent , in Sitamarhi form 2.6 percent to 2.9 percent, in Sheohar from 1.1 percent to 0.8 percent, in Vaishali form 4.6 percent to 6.7 percent, in Darbhanga from 2.1 percent to 5.5 percent, in Madhubani from 1.7 percent to 3.1 percent, in Samastipur from 2.2 percent to 5.7 percent, in Begusarai from 1.9 percent to 2.7 percent, in Munger form 0.9 percent to 1.1 percent, in Sheikhpura from 0.5 percent to 0.5 percent , in Lakhisarai from 0.5 percent to 0.4 percent, in Jamui from 0.7 percent to 0.7 percent, in Khagaria from 1.3 percent to 1.9 percent, in Bhagalpur form 2.4 percent to 3.6 percent, in Banka form 1.0 percent to 2.0 percent, in Saharsa form 2.3 percent to 2.5 percent, in Supaul from 1.4 percent to 1.1 percent, in Madhepura from 2.1 percent to 2.6 percent, in Purnia from 1.3 percent to 3.5 percent, in Kishanganj from 0.8 percent to 2.9 percent, in Araria from 0.6 percent to 1.0 percent and in Katihar from 1.6 percent to 2.4 percent respectively in these districts in Bihar.

From the above figures it may be say that the production of fruits like mango, Banana, Guava, Litchi and other fruits including Makhana (in Darbhanga and Madhubani) is not increasing much satisfactory during the period from 2010-11 to 2014-15. The utilization of area under fruits production is constant as compared to the pervious utilized area. The total production of fruits in Bihar was 3911756 tonne in 2010-11 which decreased to 3979.82 tonne only in 2014-15, where area decreasing from 2964.24 hectare to 346.64 hectare during the period from 2010-11 to 2014-15 respectively in Bihar. In fruits production Muzaffarpur has first rank 10.7 percent among all districts where Vaishali 6 percent Darbhanga 5.5 percent, Nalanda 5.2 percent, West Champaran 4.4

percent, East Champaran 4.6 percent and other rest districts are below 4 percent in the state. So, there is urgent need to increase area for fruits production and other facilities to the development of horticulture produce in each districts in Bihar.

REFERENCES:

1. Government of Bihar : Agricultural Mission – Approach to 12th Five Year Plan, Department of Finance, GOB, Patna, PP.54.55
2. Government of Bihar : State Horticulture Mission 2010-11, GOB, Patna, PP.13-15
3. G. Srinivasan : National Rural Livelihood Mission, Vo.59, No.12, October 2011, kurukshetra, New Delhi, PP.36-38