

**STRATEGY DOCUMENT ON
DOUBLING FARMERS
INCOME BY 2022 IN
KASHMIR DIVISION**



**DIRECTORATE OF AGRICULTURE
KASHMIR**

DOUBLING THE FARMERS INCOME IN J&K STATE BY 2022 – Strategy thereof;

No matter production/productivity could be enhanced by adopting programmed methodology, unless it reaches to a market in the form of a brand with assured higher price for the farmer, till then one can only speculate but dream of doubling farmers income cannot be realized. Therefore there is a need strategize the model of enhanced production coupled with establishing better marketing channel for enhanced economic gains for the farmers. So right pricing for the farm produce is to be ensured by devising the strategy. Therefore J&K State in this direction has devised the strategy for highlighting the focus areas for such endeavour.

Agriculture plays a predominant role in the development of economy of J&K. Around 73% of the population of the State resides in the rural areas and is directly or indirectly dependent upon this sector for their livelihood and employability. Despite its importance for ensuring inclusive growth and providing Food security, the contribution of Agriculture towards Gross State Domestic Product (GSDP), is gradually decreasing. The decline in growth rate is attributed to low productivity, lack of adequate agricultural research extension, low seed replacement rate, yield stagnation, lack of adequate irrigation facility.

The Kashmir valley, however, is just one small part of the state. The valley is an ancient lake basin 140 km long and 32 km. wide. The average elevation of the Valley is 5,300 feet above sea level. Because of its altitude and the tall mountains rising up to 16,000 feet that surround the Valley, the weather here is pleasant for most of the year. Its rich alluvial soil, well drained by rivers and streams yield rice, saffron, vegetables.

Kashmir Division of Jammu and Kashmir State has a varied climate ranging from temperate regions of Valley to Cold arid Regions of Kargil and Leh. The total geographical area of Kashmir

Division is 1.21 lac Sq. Kms out of which the net cultivable area in the Division is 3.11 lac hectares with gross area sown being 4.51 lac hectares. Like other parts of the country 70% of the population reside in rural areas with agriculture as their main stay. Majority of the Farm operating families are small and marginal ones. By virtue of varied climatic conditions nature has bestowed the valley with great potential for diversified agriculture farming. Paddy, Maize, Vegetables and Pulses are the major crops grown during Kharif Season while Oilseed, Pulses and some leafy vegetables, wheat and fodder are also grown during Rabi season. The agriculture production in Kashmir Division has increased substantially during past several years with a cropping intensity of 132%. The advent of HYV /hybrid seeds, improved package of practice, mechanization and advanced technology has changed the agriculture crop scenario altogether ,which resulted in substantial increase in productivity as well as the production of all sown crops. In respect of Paddy, Vegetables, Saffron, the production has been recorded more than double during last two decades which transformed the socio economic conditions of the farmers. The statistical data with reference to Agriculture is as:

Geographical Area Kashmir Division	1.01 Lac Km ²
Total Area as per Village Papers (Kashmir Division)	621203 Hectares
Population (P)	7906349(P)
Net sown area(Agriculture)	3.09 Lac Hectares
Irrigated	1.90 lac Hectares
Un-irrigated	1.18 lac Hectares
No. of operational holdings (F.O.F's)	6.28 lacs
ii) Ladakh Region	1.08 Hectares
iii) Kashmir + Ladakh Region	0.53 Hectares

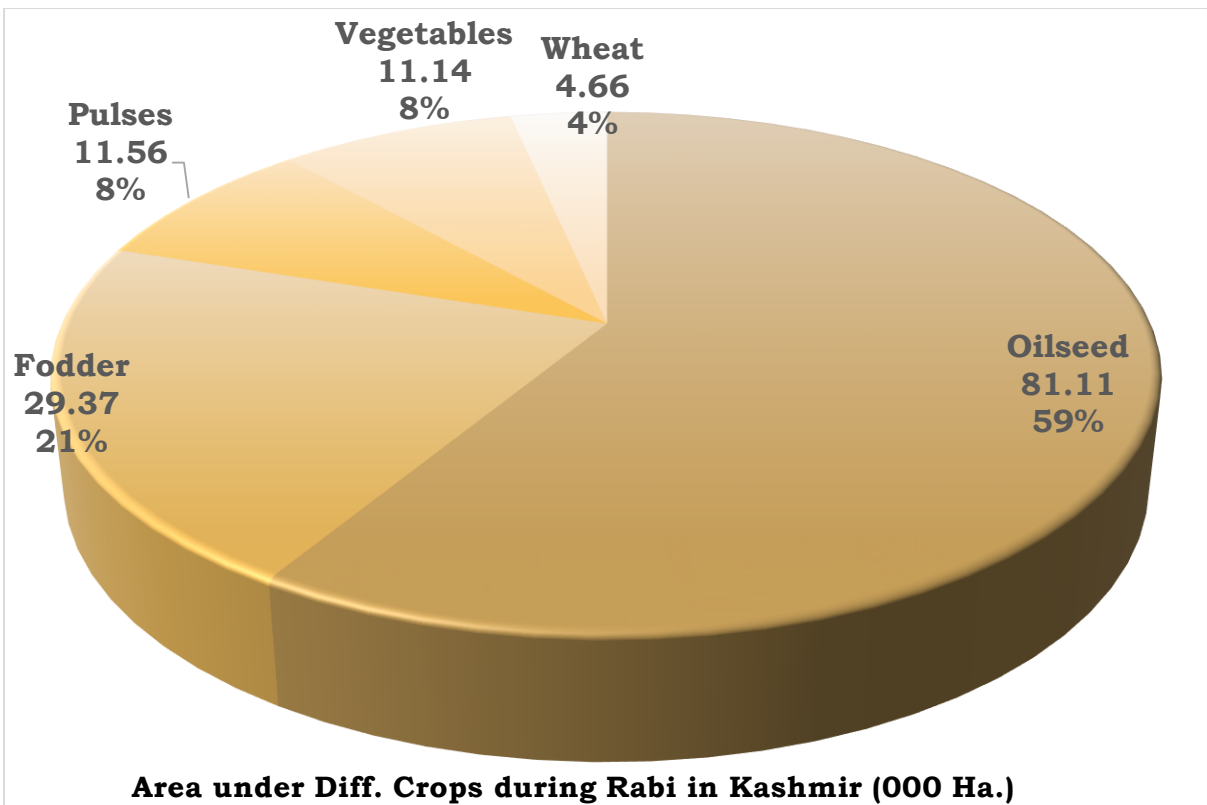
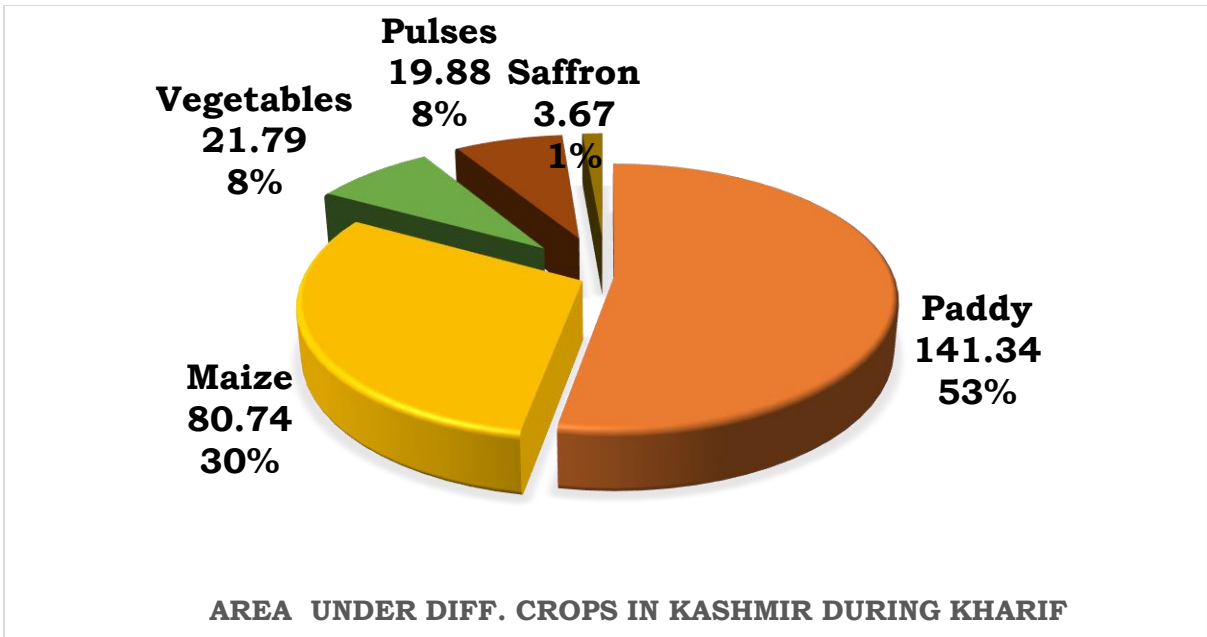
Climate

Kashmir has different weather conditions at different places because of the lofty mountains like the Pirpanjal, the Zanskar and the Karakoram that touches four checks with clouds while entering the valleys. In summers, the outer plains and the outer hills receive rainfall from monsoon winds while in winters, winds from the Mediterranean brings the cheerful snowfall in the Valley of Kashmir. The moisture-laden winds cause rainfall in the forests on the hills making the temperature to fall in summer; hence, the thickly wooded areas such as Pahalgam and Gulmarg have milder weather conditions than that of Srinagar or Sopore. Similarly, the climate of the valley of Kashmir is comparatively milder than that of the Outer Plains as it is on higher altitude.

Kashmir's climate is largely regulated by the Himalayas, surrounding mountains and the water bodies. It has four clearly demarcated seasons with distinct features. The temperature in winters may go down to -15°C in the hilly areas, while as the plains temperature ranges from -0 to -8°C . The temperature during spring and summer ranges between 20°C to 32°C in the valley region. Winters last from November to March. Spring begins after 15th of March and there is heavy rainfall during the season. Landslides often take place during this season. Humidity in the monsoon season stretching over July and August is as high as 70%. The seasons are marked with sudden change and a year can be roughly divided into six seasons of two months each:

S.No	Season	Period
1	Spring	From March 15 to May 15
2	Summer	From May 15 to July 15
3	Rainy Season	From July 15 to Sept. 15
4	Autumn	From Sept. 15 to Nov. 15
5	Winter	From Nov. 15 to 20 Dec
6	Ice Cold	From Dec. 21 to March 15

Area Under Different Crops In Kashmir Division



Natural Resources :

a) Minerals : Kashmir is rich in natural resources though in most of the minerals, the volume of these is not big enough. Various minerals found in the valley are described as follows:

1. Lignite. It is an inferior quality of coal which is found in the valley of Kashmir at Nichahama, Baramulla, Handwara, Chowkibal, Ferozepur nullah, Nagbal, Tangmarg, Raithan, Badgam tehsil, Laligang and Lolab valley. Lignite is a black brown coal that is intermediate in coalification between peat and sub-bituminous coal which has a calorific value less than 8300BTU/lb, on a moist mineral free basis. According to the report of the Geological Survey of India, there are lignite coal deposits of about 5 crore 60 lakh tons in the valley. Drilling operations were started first in the Nicaahom- Chowkibal area where the reserves were estimated at 4. 5 million tons to a depth of 40 metres. Lignite is used as a fuel in the valley of Kashmir.

2. Limestone. All the three regions of the State i.e. Jammu, Kashmir and Ladakh have deposits of different ages and grades of Limestone. The Limestone of Kashmir is of high quality and is used in the manufacture of cement at Wuyan and Khrew. These deposits exist in Anantnag, Achhabal, Doru, Verinag, Biru, Sonamarg, Ajas, Wuyau, Khrew and Loduv. It is also used as building stone and mortar.

3. Copper ores are found at Aishmuqam, Shubbar area (Anantnag), Lashtil hill spurs (Baramulla), Handwara, Sumbal, Kangan and Lolab valley in the province of Kashmir.

4. Iron-ore deposits occur in Sharda (Karnah tehsil), Khrewa, Haral (Handwara), Uri tehsil, Garez (Sopore tehsil) and Lolab valley in Kashmir.

5. Gypsum. It is used for making plaster of paris and chalksticks. The Kashmir province has gypsum deposits at Lachhipora, Baramulla, Anantnag, Liddipora and Kathia Nullah (Uri). There is total reserve of about 4 million tons of gypsum in the State.

6. Ochre. It is used in paints and varnishes etc. There are extensive deposits of ochre in Nur Khawn, Ratasar and Jhaggi in the Uri tehsil. About 4 lak tons of ochre have been found in the State so far.

7. Zinc and Nickelarfound at Buniyar (Baramulla).

8. Fuller's Earth is used in the manufacture of country soap and for filling paper. It is found in Rampur near Baramulla

9. Slate Stone is found in abundance in the valley of Kashmir.

10. Graphite is used in the manufacture of lead pencils and is found in Bararipora, Uri, Karnah, Malogam, Piran in the province of Kashmir

11. Sulphur is found in Pagga valley in Ladakh. In spring water, it is found at Anantnag and Khrewa. The estimated deposits of sulphur in the State are 2,00,000 tons.

12. Marble. Large deposits of marble have been found at Drugmalla, Zirahama, Oura and Trehgam in Kupwara district of Kashmir. This is light brown to dirty grey in colour. This is being used commonly in buildings these days.

b) **Water resources**

Water resources are sources of water that are potentially useful for hydroelectricity, agricultural, industrial, household, recreational and environmental activities. The Jhelum and Sindh rivers are flowing through Kashmir. In addition to it ample water resources are present here besides lakes, rivers, glaciers and groundwater are also present in huge quantity. Renewable power generation can help countries meet their sustainable development goals through provision of access to clean, secure, reliable and affordable energy. Therefore, these rivers offer a great scope for generating hydro-electricity to the tune of 25000 MW as low and competitive source of renewable electricity.

Irrigation:

Water is one of the important and critical inputs necessary for plant growth. In Kashmir 62% of the total Net sown area is irrigated while as the rest 38% is rain fed. The main sources of irrigation is Canal Irrigation where as a very small area is irrigated through wells etc. Ladakh region is not conducive for raising of crops unless irrigated. Farmers of the area have dug irrigation channels known as Mayur to irrigate their fields.

Land Use Pattern :

Important cropping systems followed in Kashmir are:

Agro Climatic Zone	Districts	Cropping system
Mid to High Altitude Temperate Zone	Anantnag, Budgam, Baramulla, Kupwara, Ganderbal, Kulgam, Shopian,	Paddy –Oilseed Paddy-Oats Maize-Wheat
Cold Arid Zone	Leh, Kargil	Wheat Millets

The following Centrally Sponsored schemes are in vogue in the state in agriculture sector:

1. National Food Security Mission (NFSM)
2. National Mission on Agricultural Extension and Technology (NMAET)
3. National Mission on Sustainable Agriculture (NMSA)
4. Rashtriya Krishi Vikas Yojana (RKVY)
5. National e-Governance Plan –Agriculture [NeGP-A]

Schemes under CAPEX:

6. Project on Apiculture Cluster at District Kupwara
7. Project on Virus Free Potato Seed Village
8. Organic Farming
9. Project on Intensive Veg. Cultivation

Strategy for Doubling Farmer's Income by 2022:

1. Market Driven Agriculture Policy : Agriculture policy solicits flexibility in view of the changing market trends and thus needs to be market driven as per the changing demand and supply of various agri. commodities in the market. One of the biggest buzz phrases we hear today is that the world is getting smaller as it represents a global village. This one coupled with the WTO regulations, gets us thinking about how we devise our agriculture policy albeit Production and productivity are twin objectives. Thus Transforming Agriculture into Entrepreneurship by Participating effectively in the highly competitive global agricultural markets by resorting to exploration of potentiality associated specific area , the ever changing dynamics of different agricultural commodities and changing land demography due to Conversion of prime agriculture land for non-agricultural purposes will remain a concerning principle in drafting an agriculture policy for the state of Jammu and Kashmir. Furthermore Limited scope of bringing more land under cultivation and making the farming remunerative underline the challenges in agri. policy formulation and principle of Less land, less time and more production with sustainability should serve as cornerstone for future planning. New policy drafted should provide opportunities to make farmers competitive in domestic as well as international markets and should be able to get benefits due to economic liberalization and globalization. In this backdrop thrust areas based on these perceptions need their space in drafting a new agriculture policy. Sustenance of agriculture as viable activity will be possible only if there is a paradigm shift from the present food- security based agriculture to high-value crop and value-added agriculture, albeit, consistent with the requirements of preserving the ecology and environment of the State. In the formulation of agriculture policy for the State it will be the one of the most important focus and all the strategies conceived or to be conceived for the agriculture and allied sectors should synergize in this direction.

The policy approach in agriculture so far has been to secure an increase in production mainly through subsidies on inputs such as irrigation, water, power, fertilizers, seeds and pesticides

rather than building new capital assets in irrigation, power and rural infrastructure. It is necessary to evolve a new approach towards agriculture development based on careful assessment of current constraints and available resources and options.

The National Policy on Agriculture envisages a growth-rate in excess of 4% per annum in the Agriculture Sector. Keeping in view untapped potential of Agriculture and allied sectors in the State, the State policy on Agriculture seeks to achieve a significantly higher growth rate for this sector. The growth of the agricultural sector requires that the State addresses the challenge of efficient and optimal utilization of existing resources in order to further improve its competitiveness. Resource constraints and rapid changes in the global trading and investment environment necessitate the development of a resilient agricultural sector and the enhancement of its global competitiveness. In addition, the concern over the availability and stability of food supply requires farmers to strengthen their competitive capabilities in food production. These challenges require new strategic approaches and policy thrusts to enhance the economic conditions and growth of the agricultural sector.

Agriculture policy should focus on new approaches to increase productivity and competitiveness, venture into new areas as well as conserve and utilize natural resources on a sustainable basis. Policy should aim to set in place the enabling and supportive measures as well as conducive atmosphere to promote growth in agriculture sector .The policies and strategies will continue to emphasize productivity and market driven growth.

Objectives

The overriding objective of New Agri. Policy should be maximization of income through the optimal utilization of resources in the sector, maximizing agriculture's income and export earnings as well as maximizing income of producers.

Specifically, the objectives of the Policy should be :

- i** to increase productivity and competitiveness of the sector
- ii** to link the Agriculture with the Market

iii to make the farming more remunerative

iv to create new sources of growth for the sector

v to conserve and utilize natural resources on a sustainable basis.

vi to Zonalize Agriculture as per the suitability and adaptability of different crops under varied Agro Climatic conditions.

2.Enhancing Production and Productivity: Production and productivity is a determining factor for changing the socio economic condition of the farmers and lack of access to the quality seed due to higher cost will have a catastrophic effect on the economy of the farmers coupled with substantial decrease in food production. Therefore it can be registered by way of :

2.1 Production & Procurement of Hybrid Seeds: Healthy, good quality seeds are the root of a healthy crop. Hence the selection of seeds is crucial. Presently, use of hybrid seeds are intensively prevalent and are widely regarded as having played a determinant-ale role in augmenting the agricultural output during the latter half of 20th century and thereby has contributed significantly to the food security measures. Kashmir has a distinction and a clear advantage over other regions of India in respect of Vegetable Cultivation due to climatic factors and replacement of ordinary seeds by HYV is bound to increase the production by 20-30%,but use of hybrids will register an increase of 100-200% yields for economic gains of farmers.

2.2 Integrated Management of Land and Water Resources: Soil and water are two crucial inputs for plant growth and as such are directly related to increasing Production and productivity of Crops. With the passage of time exhaustion of the land and the ill effects of fertilizers have started to be felt and the slogan of increasing production and productivity has been augmented with Sustainable Agriculture. Organic Farming is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It

is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony. Therefore, stewardship of both natural and human resources is of prime importance. Department of Agriculture towards this direction has established Organic Clusters in each district, first organic crop of which is likely to hit the market in next year.

2.3 Creation of Irrigation Facilities: About 38 % of the net sown area in Kashmir is Unirrigated and reduction in yield due to this factor is to the extent of 20%.

2.4 Increasing Seed Replacement Rate: Seed is a basic critical input of Agriculture and like other living things; it is also subjected to ageing and as such loses its ability to yield to its potential. As such, seed replacement of different crops becomes inevitable. Accordingly, Seed Replacement Rate (SRR) of 33% in case of self-pollinated crops and 50% in case of cross pollinated crops has been fixed as per Seed Act, 1966. The process of producing quality seed is being taken up at departmental seed multiplication farms, however, owing to huge seed requirements department of agriculture engages itself to procure quality seed from different sources for use by poor farmers of Kashmir province.

2.5 Site Specific Cropping: Special Agricultural Zones based on climate/ physiographic factors and niches will be established. Department of Agriculture in consultation with other departments and SAUs/ICAR Institutes shall develop agricultural zone map of the state and identify niche crops/commodities to be promoted (with increased focus) in that zone, with emphasis on cash crops/commodities.

2.6 Preventing Losses to the Crops: Pests and diseases can affect crops and have a serious impact on the economic output of a farm. An estimated 15-25 percent of potential crop production is lost due this menace. Need of the hour is to adopt a holistic approach to be implemented in a very systematic manner to reduce these losses.

Requirement of Seed as per SRR and Seed Villages required to be laid to meet the requirement in respect of Kashmir Division									
S. No.	Particulars	Rice	Maize	Pulses	Fodder	Oilseed	Wheat	Potato	Peas
1	Area(000Ha.)	141.34	80.74	31.44	29.51	81.11	4.66	2.08	8
2	Seed Rate (Kgs/Ha.)	60	30	50	100	10	100	2000	60
3	Total Seed Req.(Qtls.)	84804	24222	15720	29510	8111	4660	41600	4800

A sum of Rs : 71.40 Crores will be required to accomplish the task of achieving the desired SRR of 33% in case of self-pollinated crops like Paddy, Oats, wheat etc. and 50% in case of Cross pollinated crops like Oilseed, Maize etc. & 100% in case of hybrids. HYV developed by SKUAST-K which are to find their place in the replacement in case of Paddy are: Shalimar Rice(Diff Varieties)and in case of Maize are SMC-4, SMC-7 along with hybrids like KH-101, KH-517, B-59, B-52 etc. Regarding Vegetables focus will be on replacement of traditional varieties with Hybrids and as such would require to be replaced every year.

Regarding the requirement of Breeder and Foundation seed to meet the aforementioned requirements of certified class of seed, the same has been calculated and will be catered to by the SKUAST-K., details of which are as hereunder:

S. No	Crop	Variety	Req. of foundation seed(Qtls.)	Req. of Breeder seed(Qtls.)
		Shalimar Rice-2	628.00	13.95
		Shalimar Rice-3		
		Shalimar Rice-4		
		Shalimar Rice-5		
		K-332		
02.	Maize	Shalimar Maize Composite-3	263.00	5.72
		Shalimar Maize Composite-4		
		Shalimar Maize Composite-5		
		Shalimar Maize Composite-6		
		Shalimar Maize Composite-7		
		C-6		
		KG-II		
03.	Pulses	Shalimar Moong-1	69.56	3.65
		Shalimar Moong-2		
		Shalimar Rajmash-1		
		Shalimar Cow pea-1		

		Shalimar Rajmash-2		
		Shalimar Soyabean-1		
04	Wheat	Shalimar Wheat-1	279	23.29
		Shalimar Wheat-2		
05	Oats	Subzar		
		Shalimar Fodder Oats-1		
		Shalimar Fodder Oats-4	983	44.00
		Shalimar Fodder Oats-2		
		Shalimar Fodder Oats-3		
06	Oilseed	KS-101		
		Shalimar Brown season-1	81	1.60
		Shalimar Brown season-2		
		Shalimar Brown season-3		
07	Pulses	Shalimar Masoor-1		
		Shalimar Masoor-2		
		Shalimar Peas-1	39.83	2.09
		Shalimar Masoor-3		
		Shalimar Chick pea-1		

Impactful Gains Due to the Strategy :

S.No	Activity
1.	<p>Enhancing Production and Productivity : Through Production & Procurement of HYV/Hybrid Seeds, Integrated Management of Land and Water Resources, Increasing Seed Replacement Rate , Preventing Losses to the Crops etc.</p> <p>Paddy Cultivation ; a) Net Returns due to Traditional ,Low Yielding Varieties @ 40-50 Qtls/Ha. @ Rs 1300/Qtl.= Rs :13523.00 b) Net Returns due to High Yielding Varieties @ 60-80 Qtls/Ha. @ Rs 1300/Qtl.= Rs :17047.00</p> <p>Maize Cultivation ; c) Net Returns due to Traditional ,Low Yielding Varieties @ 10-12 Qtls/Ha. @ Rs 1600/Qtl.= Rs : 16000.00 d) Net Returns due to High Yielding Varieties @ 25-30 Qtls/Ha. @ Rs 1600/Qtl.= Rs :26500.00 Additionally there would be an income of Rs 60000 .00/Ha.on account of Green Fodder</p> <p>Vegetable Cultivation ; a) Net Returns due to Traditional ,Low Yielding Varieties @ 80-100 Qtls/Ha. @ Rs 1000/Qtl.= Rs :65000.00 b) Net Returns due to Hybrids @ 250-300 Qtls/Ha. @ Rs 1000/Qtl.= Rs :195000.00</p>
<p>Average Gain to Farmer having 0.35 Ha. Land Holding due to this Intervention = Rs 19544.00</p>	

The average yields recorded in absence of HYV in Paddy in Kashmir Division have been 67 Qtls./ha with cost of cultivation

recorded at Rs.63523.00 per hectare ,thus no substantial net gains for framers if the produce is sold @ Rs.1300/Qtl. As against this by use of HYV like SR-2, SR-3,SR-4 yields as high as 80-90 Qtls./ha. have been recorded and as such there would be a net gain of Rs :40477.00/ha.

In case of Maize the Cost of cultivation/ha. Comes to Rs.24500.00. The yields recorded per hectare are 30 Qtls./Ha, thus a farmers would normally get Rs : 76000 /ha. (Including cost of fodder)Contrary to this the yields as obtained in field due to use of Hybrids /HYV have been 45-50 Qtls./hectare. Thus replacement of old traditional varieties with new one would yield Rs1.08 Lacs/hectare.

The gains in Vegetables due to use of hybrids have been spectacular as yields as high as 330 Qtls./Ha. have been recorded thus a trifold increase to the tune of Rs:6.5 Lacs per hectare.

3.Exploration of Markets through Formation of FIG & FPO,s.

In order to improve access to market and to strengthen the position of small and marginal farmers, it is important to federate farmers so that they can easily bargain for better prices, both while buying inputs and selling their produce. This is the point where the concept of establishing crop specific “Farmers’ Producer Organizations” The term “Crop Specific” is of much importance here, as this would help in aggregation of crop specific input procurement and output sourcing and ensure future sustainability of such organizations. This approach demonstrates the potential to be more successful in breaking farmer’s dependency on intermediaries, and enabling them better access to technology, finance, markets and Govt. schemes. Various steps involved in formation of FIG’s and FPO’s will be:

- a. Aggregating the farmers to convince them for bringing them on one platform and inform them about the concept and scheme of FPO and how it is beneficial for them. For that, at the village level, opinion leaders/ Contact Farmers (CF)/ Progressive Farmers will be identified as entry point for organizing farmer meeting and mobilizing the producers and

make them understand how they can get benefited through FPO formation in their area.

- b. In the 2nd step, from the village level meetings, farmers who finally will be interested to join the program in well-structured groups of 15-20 farmers. Care will be taken that the interested members are mostly small and marginal farmers and farmers of same locality/lane/village are grouped to form the FIGs and approx. 10-20 FIGs will be formed in each block. All the FIGs will be given a name as per the name selected by the FIG members. Once the FIGs formed, a large meeting will be called in which opinion leaders/ Contact Farmers (CF)/Progressive Farmers from each FIGs will be invited and trained on the procedure for FPO formation, its vision, mission, management and governance, and business planning for the FPO. All other legal formalities related to company registration viz- legal document collection, account opening, PAN card, CA finalization, verification, digital signature, etc. will be completed. The management process through which goods and services move from concept to the customer has four elements called the 4 P's of marketing:
- (1) Identification, selection and development of a product,
 - (2) Determination of its price,
 - (3) Selection of a distribution channel to reach the customer's place, and
 - (4) Development and implementation of a promotional plan

S.No	Activity
2.	<p>Exploration of Markets through Formation of FIG & FPO,s: On an average due to sale of the agri. produce through Intermediaries and improper Market Linkage, farmer loses about 20% of the Margin that he would otherwise get due to direct sale of his produce in well-established Mandis .</p>
<p>Average Gain to Farmer having 0.35 Ha. Land Holding due to this Intervention = Rs 3600.00</p>	

The loss due to the sale of Agriculture produce through intermediaries accounts for about 40-60% of the sale rate that a farmer would otherwise get had the sales been effected directly by

the farmer in the designated Mandis. One FPO for Cereal crops will be formed in each of the 171 Blocks and will require a budgetary provision of Rs 34.20 Crores @ Rs 20 Lacs/FPO. Furthermore by way of FPO formation, job opportunities for 5-6 educated youth per FPO will be created besides entrepreneurship development.

4. Shift of Approach from Commodity Based to Product Based Approach and from Food Security to Value Addition Mode: The continuing trend in selling vegetables is adding value. It is recognized that Kashmir can capitalize on its rich natural resources and man power to augment surplus vegetable production which could be translated into value added products, higher returns and employment generation. By proper handling and value addition J&K can be a dominant player at national level. Kashmir has immense prospect for exporting vegetables to the world market as it has the potential to produce high quality exportable vegetable however lack of value addition industries can be a constraint. However poor market linkages and poor access to the national markets due to its positioning on the globe are some of the constraints which need to be overcome to move in this direction. Value Addition in respect of the Quality Maize, Potatoes and Vegetables produced in the state are much required interventions to give a boost to the Agriculture sector in the state and for providing job opportunities to the youth of the state.

Globally, Value addition of food products is expected to increase from 8 per cent to 35 per cent by 2025. Fresh Fruit & vegetable processing is also expected to increase from the current level of 2 per cent to 25 per cent of total production by 2025. There is a large gap between farmers and retail prices .So, to be relevant at National and International level, much is to be done in the field of Value addition. Simultaneously, the traditional retailing of vegetables is not very much organized, amounts to 97% of the total market, is extremely localized and highly fragmented with large number of intermediaries. Post-harvest value addition includes primary, secondary, and tertiary processing, operations performed on farm produce. Key Strategies for Adding Value would include:

- Changing physical state of products
- Producing enhanced value products
- Differentiating products

- Bundling products
- Producing more products that improve efficiency up the supply chain
- Owning assets up the supply chain

Some of the Possibilities in Vegetables, Cereals etc is as under:

	Name of vegetable	Season	Value addition
1	Pea	April-July	Dried pea, mixed pickle, bottling and canning, Ready to eat
2	Spinach	April onwards	Dried ,Ready to eat,Processed
3	Onion	July onwards	Dehydration and pickling
4	Garlic	July onwards	Pickles , paste, Oil
5	Mushroom	March-October	Dehydration, pickling and canning
6	Tomato	July - October	Juice, soup, puree, sauce, paste, Ready to eat
7	Brinjal	July-October	Dehydration,
8	Bottle gourd	July- October	Dehydrated, Ready to eat
9	Chillies (Local)	June onwards	Powder, Dried for coloring, mixed pickle.
10	Raddish	May onwards	Pickle and dehydration.
11	Turnip	Sept. -Jan.	Dried
12	Carrot	Round the year	Preserve, pickle, Juice, dehydration
13	Potato	June Onwards	Chips,Fries,Cutlets
14	Maize	Sept.onwards	Pop Corn, Corn Flakes, sweet corn, Baby Corn

Agriculture Department recognizes the need for linking farmers to markets under cooperative arrangements as this would assure a return on farmers' investments, and the supply of what the retailer or processor needs. Markets need to be developed to

absorb the additional output that will come with special emphasis on value addition through processing of the produce which will lead to exports and creating entrepreneurs in the Agriculture sector.

S.No	Activity
3.	Shift Approach from Commodity Based Approach to Product Based Approach and from Food Security to Value Addition Mode ,Branding etc.
Average Gain to Farmer having 0.35 Ha. Land Holding due to this Intervention = Rs :2700.00	

Furthermore, the glut of a particular in market usually results in decline of prices due to perishable nature of agri. produce especially in absence of any CA store to the extent of an average 15-25 %.Thus Value Addition would help in arresting this loss .The measures required to be adapted in this direction are:

An amount of Rs:17.10 Crores @ Rs 10 Lacs/unit for setting up of mini Value addition and processing units at Block level will be required in this direction and will be catered to though Mission for Integrated Development of Horticulture (MIDH).The net gain for the farmer of 0.35 Ha. Land Holding size with an average income of Rs:2700.00

5. Niche Crop Promotion: Kashmir has a varied type of topography with different areas having potential for excelling in different agriculture commodities. Further extensive variability in soil properties (texture, depth, slope, and aspect) and crop productivity coupled with concerns about water and soil quality, and narrow profit margins justify farming based on the needs of specific areas within a field. Site-specific farming has the potential to increase efficiency in farm decision-making, improve profit margins, and reduce environmental pollution. Saffron production in J&K State has historical background and is the unique state in India to produce Saffron for commercial purposes.

Kashmir valley is bestowed with High Value Rice Varieties like Mushkbudgi(Scented Rice),Zag(Red Rice) which if grown as an organic crop has the capacity to revolutionize our present day

Agriculture and transform our traditional farmers into world class entrepreneurs thereby raising the farm income.

Niche crops and areas identified for the purpose along with budgetary requirement is given here under :

S.No	Name of the Crop	Area Identified
1	Paddy--Mushkbudji	Sagam (Anantnag) Khansahib (Budgam)
2	Paddy—Zag (Red Rice)	Tangdar/Khurhama (Kupwara)

Creation of necessary market infrastructure, Processing units, e-marketing facilities will be developed in the identified areas for promotion of Niche Crops. Requirement of machines/equipment's for each of the area will be as:

S.No	Component	Physical	Financial (Lac)
01	Winnowing Motorized	05	2.50
02	Huller (Modernized)	01	4.00
03	Rice Extruder Processing Machine	01	7.00
04	Rice Winnowing Machine	04	1.20
05	Vacuum Packing Machine	02	4.00
06	Motorized Trolley	02	4.00
07	Miscellaneous expenses Viz Electric Transforms, conveyer belts etc.		5.00
08	Market Facilitation Centre with e Marketing Facility	02	200.00
	Total		227.5 lac

A budgetary provision of Rs 3.00 Crores will be required to accomplish the set goals.

6. Storage Facilities for Agricultural Produce;

Reduction of post-harvest losses is a critical component of ensuring food security as losses due to inadequate storage facilities amount up to 20 % losses. Food losses do not merely reduce food available for human consumption but also cause negative externalities to society through costs of waste management, greenhouse gas production, and loss of scarce resources used in their production. Thus given the significant role food loss reductions could have toward sustainably contributing to food security, it is important to have reliable measures of these losses. These losses are both qualitative and quantitative in a nature. The qualitative loss can occur due to incidence of insect

pest, mites, rodents and birds, or from handling, physical changes or chemical changes in fat, carbohydrates and protein, and by contamination of mycotoxins, pesticide residues, insect fragments, or excreta of rodents and birds and their dead bodies. When this qualitative deterioration makes food unfit for human consumption and is rejected, this contributes to food loss. Similarly quantitative losses occur mostly due to rodents. Thus there is a need for promoting the adoption of appropriate loss-reducing technologies to improve crop handling, storage, and processing. Construction of CA stores of 1000 MTs @ Rs 74.00 Lacs at district level and 500 MTS @ Rs:37.00 will help greatly towards this direction. An amount of Rs: 137.00 Crores is required for construction of CA Stores at district level to arrest these losses. Additionally Storage facility(Go downs) of 1000 MTS /Block for storing nonperishable items like Paddy, Maize will be created @ Rs:20.00Lacs/unit.

7.Production of virus free potato seed to Foot Hills:

The Kashmir division of J&K state presents ideal climate for Potato crop husbandry as Potato is essentially cool season crop, however, genetic potential of the crop has not been explored fully yet due to non-availability of high yielding disease free quality seed to majority of farming community and as such, there is wider gap between demand and supply of potato seed. So, the need of the hour is to bring more and more suitable area at high altitudes under seed production programme so as to produce genetically pure, virus free quality seed in abundance which will be a step in transforming our economy from food deficit to food surplus one and will generate employment opportunities to educated unemployed youth at these seed production centres. Moreover, labour input which is back bone of Potato crop husbandry is easily and cheaply available in our region. So, all the ingredients which are indispensable for successful seed production programme are there, we just need to tap them right now if we really want to change our status to self-sustaining economy. Rs 10.00 Crores (Recurring as well as non-recurring expenditure which would include R&D and setting up of a Tissue Culture Lab.) will be required for establishing a virus free potato area of 20 hectares.

8. Area Expansion of Potato (Edible)in Plains:

Jammu & Kashmir being a mountainous region therefore offers potential for producing virus free potato seed tubers which otherwise could supplement the requirement of breeder/ Foundation Potato seed tubers for national / International markets . Expansion of the area under Potato would be step unfolding the potential associated to economic virus free potato seed tuber production and its expansion to the foot hills in different districts of Kashmir and as such would be a step towards doubling farmer's income. The broad contours of the project will be:

1. Providing Virus free Seed to the Farmers
2. Providing requisite Machinery
3. Providing of Storage Facilities for proper storage
4. Provision for IPM,INM etc.

The total funds required for covering an area of 1000 Ha. would be Rs :25.00 Crores.

9. Brand Promotion of Agriculture Produce :

Consumers these days ascribe huge importance to brand names and thus investment in creating a brand will be a money spinner for the farmers. A successful marketing is based on the division of products into groups according to distinct and discernible levels of quality and will thus give rise to a number of categories of quality and brand each separately. . Branding, food processing and investments in supply chain will ensure that the farm produce gets the right value. By branding, we would be able to ensure that the producers get higher returns.

The guiding principle is that the highest quality products will be sold under the brand name while the lower quality goods will be sold as generic products .The climate of Jammu and Kashmir being diverse in nature, a good quantity of vegetables of diverse nature are grown in different regions of the state and can be marketed as Jammu fresh, Kashmir fresh and Ladakh Fresh. Branding Process once established could turn out to be a sector like IT, offering immense scope for jobs in rural areas. Not just Agriculture, similar potential is seen in horticulture, developing milk, meat and poultry cold chains.

Furthermore many high value products like Mushkbadji , Zag etc. unique to Kashmir are produced in good quantities which need proper branding so that farmers get a good price of their products without any influence of intermediaries. Logos for these Niche crops is to be prepared and simultaneously, Branding along with the process for Geographical indicators for these Niche crops to be initiated which will require an amount of Rs:50.00 Crores .

10. Assured Irrigation Facilities : In Kashmir valley, it rains mostly in winter when temperature is too low for plant growth. When the temperature begins to rise in May and onwards the rainfall decreases and except some showers of rain in July-August most of the growing season remains dry. The farm economy has been dependent on a single crop. Around 60% of the cultivated land in the valley is canal irrigated (very small area is irrigated with wells and tanks); 40% area is rain fed.

In Ladakh region, the desolate terrain and scanty rains are not conducive for the cultivation of crops unless irrigation is available. In fact, the entire cultivated land of Ladakh is irrigated. Some of the growers have dug their personal irrigation channels to irrigate their fields.

In addition, there are several small canals, locally known as Mayur. These canals (Mayurs) play a vital role in the agricultural land use of Ladakh. The canal (kuls, i.e. small canals) irrigation is the most important system of irrigation (more than 94%) in the state, especially in the outer-plains in Jammu region and in the broad valley of Kashmir, and hilly terrains of Ladakh. The remaining about 6 % is irrigated by wells, tanks and other sources.

To accomplish the process of assured irrigation to 1.18 Lac Hectares of Un Irrigated Area in Kashmir Province the line of action will be as follows :

1. No. of Production Wells to be established = 1500
having capacity of irrigating 1.5 Ha./day at
a cost of Rs 40-45 Lacs /unit with a command
area of 20 Ha.
2. No. of Sprinkler/Rain Gun Systems to be established = 1500
at a cost of 1.75-2.00 Lacs/set
3. No. of Irrigation Pump sets to be distributed = 18000
4. No. of Water Harvesting Tanks to be established= 1200

S.No	Activity
4.	From Rainfed to Assured Irrigation through utilization of Natural Rain & Ground water by way of Deep bore wells, shallow wells and providing of Irrigation Pump sets to farmers on 50% subsidy.
Average Gain to Farmer having 0.35 Ha. Land Holding due to this Intervention = Rs :800-1000	

The net impact of assured irrigation to crops at critical stages of growth will result in increase of productivity to the level of 15-20 % and assuming an average of 1-1.5 Kanals as Unirrigated/farmer and thus an additional income of Rs:800-1000/farmer.

11. Farm Mechanization:

There is now acute shortage of Labour leading to high employment of immigrant workers in agriculture sectors. Productivity gains in agriculture have also not matched up to increases in factor prices. This necessitates measures to reduce Labour requirement in agriculture and increase Labour productivity through Labour saving technology, innovations and more efficient farm management. Mechanization as per topography of the valley and crop requirements will not only reduce the drudgery but also reduce cultivation costs enabling farmers for competitiveness.

Mechanization by way of reduced drudgery leads to increased savings and better efficiency. Department of Agriculture has been promoting farm mechanization by providing power tillers , modern tool kits etc. on subsidized rates to the farmers however the small holding size has been a limiting factor. The line of action in this matter will be to provide following machinery to the farmers on subsidised rates to encourage them to adapt the mechanized way of agricultural operations.

S.No	Name of Farm Machinery	No,s
1	Tractors	2100
2	Power Tillers	4500
3	Weeders	6000
4	Paddy Trans planters	500
5	Potato Diggers	300
6	Paddy Reapers	15000
7	Paddy Threshers	25000
8	Paddy Millers	171

12.Promotion of High Value/Exotic/Organic Vegetables :

Kashmir has the unique distinction in the country to have a vegetable production season when it is an off season for rest of the country ,thus provides an unique opportunity for the farmers to hike their earnings by stepping into vegetable cultivation. Cultivation of Broccoli, Brussels sprouts, Asparagus, Lettuce, Red Cabbage offers a unique opportunity for the vegetable growers of Kashmir to cater to the demands of these vegetable in European countries vis-à-vis earning huge farm income. Steps need to be taken to encourage the farmers to go for promotion of these vegetables. High Value Vegetable cultivation in Kashmir Division has the capacity to transform into an export oriented venture and bringing dividends to the vegetable growers. Furthermore unique production season of Kashmir valley makes it more advantageous for farmers for taking up the cultivation of these crops to increase their farm income. Initiatives under this scheme would include:

- Construction of Collection Centres
- Construction of new market yards
- Process of starting retail markets
- Dissemination of market Information
- Organising farmer's awareness camps
- Market Linkage & e Marketing

A budgetary provision of Rs:20.00 is required for an area of 100 hectares on this account.

13. Vegetable Seed Production Programme :

Kashmir has the ideal climate for Vegetable seed production and as such the production of vegetable seed production especially of Cole crops has been a leading enterprise in Kashmir since long. January is the coldest month when the mean minimum Temp. for the region as a whole is about -5 °C, varying from -2°C in the average altitudinal areas to -8°C high altitudinal areas in the surrounding mountains. While the mean maximum temperature for the region as a whole is about 5°C, varying from 6°C at average altitudinal areas to 1°C at high altitudinal areas in the surrounding mountains. A much lower temp. is experienced in the wake of western disturbances during winter. These temperatures provide a conducive platform for the farmers of the valley to go for Vegetable seed production of Cole crops. The department will be helping the farmers to take up this venture for export purposes with following incentives:

- a. Providing Quality Foundation Seed on subsidised rates
- b. Providing Poly green Houses
- c. Providing Vermi compost units
- d. Processing and Branding
- e. Providing Market Linkage

Funds to the tune of Rs : 10.00 Crores are required on this account.

14. Promotion of Cottage Industries ; The valley of Kashmir state has a varied availability of flora and is home for four species of honey bees, the native species *Apis cerana*, *Apis florea*, *Apis dorsata* and exotic species *Apis mellifera*. Kashmir with huge varietal flora has a great export which needs to be explored for sustainable growth .Kashmir is endowed with immense natural treasures in terms of forests which are replete bee flora ranging from Trees, Hedges, Flowers and a variety of medicinal plants like *Verinocia* species, *Salix*, *Caprea*, *Terascicum*, *officinalis*, *Robinia* (kaker), *aesulespp.*, *Ailenthus spp.*, *Castanea spp.*, *Cannabis Sativa*, *Plectranthus*, *Rugossus*, *Crocus sativus* and a host of other herbs. Keeping in view the huge resources and great potential for exporting honey to the rest of India. Honey produced in Kashmir valley is considered among the best honey in the world. Various

steps including Bee keeping equipment like bee queen entrance guards, queen excluders, honey extractors, and hive tools of standard quality are being supplied to bee keepers by the department at subsidized rates. Furthermore enhanced pollination by way of these honey bees has augmented the yield of fruits especially apple .

Department of Agriculture has already embarked on this mission by starting a Cluster based approach in Kupwara wherein different incentives are being provided to the farmers. Similarly a honey processing unit is being established in each district to facilitate the farmers for processing their crude honey. The total initial expenditure involved in establishment of 100 Bee Colonies & yearly returns thereof are discussed as under :

1. Cost of 100 Bee Colonies = Rs 200000.00
2. Cost of 100 Bee Hives = Rs 200000.00
3. Cost Of Medicines = Rs 5000.00
4. Cost of Equipments = Rs 20000.00

Model Cost Benefit Analysis of 100 Bee Colonies		
1	Production of Honey @ 10Kgs/Colony/year	10 Qtls.
2	Value of honey @ Rs.20000/- per Qtl	Rs 2.00 Lacs
3	Production of Bee Wax @1Kgm/Qtl of Honey	1 Qtls
4	Value of Bee Wax @ Rs.40000/- per Qtl	Rs 0.40 Lacs
5	Total Income	Rs 2.40 Lacs
2nd year		
1	Multiplication of bee colonies (30%)of the Ist year	30
2	Total no of bee colonies at the end of Second Year	130
3	Honey Production @10 Kg/colony	13 Qtls.
4	Value of honey @ Rs.20000/- per Qtl	Rs 2.60 Lacs
5	Production of Bees Wax @1Kgm/Qtl of Honey	1.30 Qtls
6	Value of Bee Wax @ Rs.40000/- per Qtl	Rs 0.42 Lacs
7	Total income	Rs 3.02 Lacs
3rd year		
I	Multiplication of bee colonies (30%)of the IInd year	40
iii	Total no of bee colonies at the end of 2018-19	170
Iv	Honey Production @10 Kg/colony	17 Qtls.
V	Value of honey @ Rs.20000/- per Qtl	Rs 3.40 Lacs
Vi	Production of Bees Wax @1Kgm/Qtl of Honey	1.70 Qtls
vii	Value of Bee Wax @ Rs.40000/- per Qtl	Rs 0.68 Lacs
viii	Total income	Rs 4.08 Lacs

Total returns	
Ist year	Rs 2.40 Lacs
IInd Year	Rs 3.02 Lacs
IIIrd Year	Rs 4.08 Lacs
Grand Total	Rs : 9.50 Lacs

Likewise Conducive Agro climatic conditions (Temperature/ RH range 10 to 30 C /65 to 70%) coupled with available local resources provide an excellent opportunity for taking up Mushroom cultivation as a cottage industry in the valley. The department has already established an Integrated Mushroom Center at Lalmandi which is providing Pasteurized compost to the mushroom growers which is a key component in Mushroom Cultivation. To give a further boost to this industry the department is planning to set up such integrated centers across all districts of the valley.

The economics of establishing a unit of 100 Mushroom Trays is given as under:

S.No	Item	Cost (Rs)
1	Cost of 20 Qtls. Of Paddy straw @ Rs 650 / Qtl.	13000.00
2	Cost of 08 Qtls. Of Poultry Litter @ Rs 200 / Qtl.	1600.00
3	Cost of 30 Kgs. Of Urea @ Rs 6 / Kg	180.00
4	Cost of 04 Kgs. Of DAP @ Rs 20 / Kg	80.00
5	Cost of 12 Kgs. Of MOP @ Rs 15 / Kg	180.00
6	Cost of 1 Qtl. Gypsum @ Rs 1500 / Qtl.	1500.00
7	Cost of 12 Bags Peat @ Rs 500/Bag	6000.00
8	Cost of 50 Bottles Spawn @ Rs 20/ bottle	1000.00
9	Cost of Fumigant etc.	300.00
10	Cost of Crump Soil 8 Bags @ Rs 100/ Bag	800.00
11	Electricity Charges	1000.00
12	Miscellaneous charges	1000.00
Total Cost of production of 100 Trays/season		26640.00

A. Capital cost / fixed cost.	
i)Cost of implements/ machinery	Rs. 0.50 Lacs
Total	Rs 0.50 Lacs
B-Recurring cost	
i)Recurring cost for 300 poly bags (two seasons) /100Trays	Rs. 0.55Lacs
Total	Rs. 0.55Lacs

C-Depreciation on Fixed costs @ 3%	Rs. 0.05Lacs
D- Returns	
i) Sale of Mushrooms 1.5Kgs/bag /season @Rs 150/Kg	Rs1.35 Lacs
i) Sale of manure 20 Qtls.@ Rs 200/Qtl /season	Rs 0.08 Lacs
Total	Rs 1.43Lacs

Net Profit = D-(B+C) = Rs.1.43-(0.55+0.05) = Rs 0.83Lacs

C B RATIO =1:2.38

S.No	Activity
5.	Promotion of Cottage Industries like Mushroom and Apiculture (Bee Rearing) will diversify the farming and result in additional income to farmers.
Average Gain to Farmer with 20 Bee Colonies/Mushroom Trays due to this Intervention = Rs :50000	

Farmers will be encouraged to have either 50 Mushroom trays unit or 20 Colonies Bee unit which will have an impactful gain with respect to his annual income. Net gains due these cottage industries to a farmer will be Rs:50000-60000/farmer. The action plan under this component will be as:

No. of Bee Colonies (20 Colonies/hives per unit) = 15000 Units

No. of Mushroom units of 100 Trays = 21000 Units

A sum of Rs;123.00 Crores will be required to accomplish the goals as set above.

15.Promotion of Vegetable Cultivation :

Vegetable sector has been identified as the key priority sector for doubling the farmer's income. Kashmir has the unique distinction in the country to have a vegetable production season when it is an off season for rest of the country, thus provides an unique opportunity for the farmers to hike their earnings by stepping into vegetable cultivation. Steps need to be taken to encourage the farmers to go for area expansion under vegetables.

15.1 Area Expansion :

The average net income per hectare under vegetables in Kashmir is Rs:6-7 Lacs/ha. as against Rs:70-80000/ha. in case of pulses. The department of Agriculture is persuading the farmers

to go for conversion of area under pulse (19880 Hectares) to Vegetable due to its useful gains over a period of 3 years. Vegetable cultivation in Kashmir Division needs to be transformed into an export oriented venture as the valley has the potential to export vegetables to rest of the country due to its typical seasonal advantage. Further post- harvest processing of fresh vegetable will lead to creation of employment opportunities for the unemployed educated youth in Kashmir Division .Availability of Vegetables in Kashmir is as below:

S.No	Crop	Availability Period		
		Beginning	Peak	End
1	Brinjal	July	August	Mid Sept.
2	Cabbage	April-May Sept.-Oct.	May Sept.	-
3	Cauliflower	April-May Sept.-Oct. .	July - Nov.	July, Nov.- Dec.
4	Tomato	July	August	Mid Sept.
5	Beet Root	June	Aug.-Sept.	October
6	Potato	June	August	November
7	Bitter Gourd	August	September	October
8	Bottle Gourd	August	September	October
9	Cucumber	June	Tomato	October
10	Beans <i>Green</i>	June	Beet Root	November
11	Capsicum	June	August	October
12	Knolkhol	June - October	July - Nov.	October
13	Radish	March- October	October	December
14	Saag	All Round the Year		
15	Chillies	June	August	October
16	Pumpkin	September	October	November
17	Bhindi	August	September	September
18	Broad beans	May	June	August
19	Peas (Green)	May	June	April-June
20	Onion	April	June	July
21	Water Melon	September	October	November
22	Fenugreek	May	August	July
23	Carrot	October	November	December
24	Spinach	All Round Year		
25	Turnip	All Round Year		
26	Musk Melon	July	August	September
27	Garlic	May	June	July

The role of Agriculture department in promotion of Vegetable sector in Kashmir Division will include :

- i)Use of hybrid seed for harvesting higher vegetable production/productivity
- ii)Promotion of vegetable cultivation by providing necessary technical know- how
- iii)Creation of necessary infrastructure like Refrigerated vans, pack houses etc.
- iv)Provide help by forming FPO's for creating market chain.

Requirements to accomplish this goal will be as under :

1. Providing of Hybrid Vegetable Seeds on 50% subsidy = 4500 Kgs
2. Providing Poly Green Houses on subsidy = 27000 No's
3. Establishment of Vermi compost Units = 6000 No's
4. Establishment of Pack Houses = 1200 No's
5. Providing Motorized Vending Carts for easy access to Local Markets = 12000 No's
6. Provision of Refrigerated Vans for transportation of Produce to National Markets = 100 No's
7. Formation of FPO,s to avoid Intermediaries = 100 No,s
8. Processing & Value Addition Units for Utilization of Surplus Produce= 100 No's

16. Promotion of Aromatic Plants :

Kashmir is akin to a large number of aromatic plants which includes Lavendar, Rosemarry, Bulgarian Rose etc.,Lavendar being the most popular. Lavender is an aromatic flowering plant cultivated extensively across temperate regions for ornamental use or as a culinary herb. The coveted oil extracted from it is used in cosmetic industries. True Lavender oil distilled from the flowering spikes is the best oil of high aroma value and has a commanding position in varied biotechnological applications The Lavendar plant is a draught resistant crop that can be grown on the rocky terrain and wastelands and therefore require considerably less irrigation – a redeeming feature that makes it immensely as a great tool to be a contributory factor for doubling farmers income. Lavender in Kashmir can be the only crop that can hold monopoly over cultivation of other crops and be a boon to the farming community to rise from traditional methods of extensive farming practices to intensive mode of farming that require least input in the form of labour, fertilizers and capital relative to the land area being farmed. Also, there is worldwide slogan to use lavender and rose products based on organic and biodynamic methods. Organically certified lavender and rose products fetch higher price in the international markets. Furthermore Lavender processing gives multiple end products that has various commercial applications, thus increasing the market value of this crop and the wealth that can be generated through its cultivation and processing. A large

chunk of wastelands and karewas can be successfully utilized for this purpose. It will open new opportunity for the farmers and unemployed youth for the production of aromatic oils, perfumes, insecticide-repellents, aromatherapy, food supplements and nutraceuticals industry. A farmer is expected to get 2 litres of oil per kanal thus a return of Rs:20000.00 per Kanal. Department of Agriculture through cultivation, processing, value addition and marketing of aromatic plants plans to provide farmers and other aspiring entrepreneurs with incentives for its cultivation and processing and the required technical knowhow for maintaining its quality.

1. Providing saplings and other necessary inputs to farmers
2. Conducting seminars and flower shows-cum-Kissan mela to spread awareness.
3. Providing Distillation Plants for Oil Extraction.
4. Help in exploration of markets and e-trading facility.

An area of 500 ha. is planned to be brought under Lavendar cultivation and funds required on this account will be Rs 16.00 Crores.

17. Promotion of Perennial Grasses to overcome Shortage of Foddder:

An area of 29.37 Th.hectares is presently under various fodder crops viz. Oats, Berseem, Red clover etc in Kashmir. However the present area is not able to cater to the demands of the growing bovine population and as a result farmer has to spend a fair amount of his income on purchase of fodder from the market. Therefore grasses like Lolium, Timothi and Tall Fescue need to be promoted to the advantage of the farmers. An area of 500 hectares will be covered under this scheme with a budgetary requirement of Rs:5.00Crores.

18. Technology Transfer Through Trainings & Exposure Visits :

The slogan of doubling farmers income would remain a dream till the latest technology developed in Lab. is not dovetailed to farmers. The problem is further compounded by the fact that these

days there is hardly any knowledge transfer through traditional modes. Gone are the days when kids used to spend time with their parents in the fields to learn how sowing is done, how harvesting is done etc. Furthermore there is no exposure to the new systems being used and getting skilled is becoming more important and critical. Resultantly the reduction in yield due to handling by unskilled labour is up to the extent of 20% . Thus educating youth in farming practices is a challenge. One of the ways to make it aspirational, particularly for rural youth is to blend it with technology. The youth can also explore entrepreneurship as not all the people can be absorbed in govt.jobs.

Thus, arranging training and exposure visits for farmers becomes an inseparable part of the strategy to double the farmers income. A total amount of Rs:6.00 Crores will be required for conducting various training programmes and exposure visits.

**Details of Funds Requirement to accomplish the Goal of Doubling
Farmer's Income by 2022**

S. No	Name of Intervention	Funds Requirement (In Crores)			Total	Scheme Under which Required
		2019-20	2020-21	2021-22		
1	Market Driven Agri. Policy	1.00	1.00	0.00	2.00	CAPEX
2	Enhancing Production and Productivity	28.56	21.42	21.42	71.40	NFSM
3	Exploration of Markets through Formation of FIG & FPO,s etc.	14.00	10.00	10.00	34.00	RKVY
4	Shift Approach from Commodity Based Approach to Product Based Approach, Branding, Value Addition etc.	7.10	5.00	5.00	17.10	RKVY
5	Niche Crop Production	3.00	1.00	1.00	5.00	RKVY
6	Storage Facilities for Agri. Produce	14.10	10.10	10.00	34.20	SVP
7	Virus Free Potato Seed Production	7.00	2.00	1.00	10.00	MIDH
8	Area Expansion of Potato to Foot Hills	15.00	10.00	10.00	35.00	MIDH
9	Brand Promotion of Agri. Produce	20.00	20.00	10.00	50.00	RKVY
10	Providing Assured Irrigation Facilities	370.68	300.00	256.02	926.70	PMKSY
11	Farm Mechanization	95.58	73.00	70.37	238.95	SMAM
12	Promotion of High Value Exotic/ Organic Vegetables	8.00	6.00	6.00	20.00	MIDH
13	Promotion of Vegetable Seed Prod.	4.00	3.00	3.00	10.00	MIDH
14	Promotion of Cottage Industries	43.00	40.00	40.00	123.00	MIDH
15	Area Expansion under Vegetables	77.00	50.00	50.00	177.00	MIDH
16	Promotion of Aromatic Plants	8.00	5.00	3.00	16.00	MIDH
17	Promotion of Perennial Grasses	2.00	2.00	1.00	5.00	RKVY
18	Training & Skill Development	2.00	2.00	2.00	6.00	NMAET
TOTAL		720.02	561.52	499.81	1781.35	