

**UTTAR PRADESH**  
**AGRICULTURE POLICY 2013**

**Roadmap for Progress & Prosperity**



**Government of Uttar Pradesh**

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# **Monitorable Implementation Schedule**

## UTTAR PRADESH AGRICULTURE POLICY 2013

The **State Agriculture Policy 2005** for Uttar Pradesh envisaged 4% growth rate in the agriculture sector. To achieve this, the Agriculture Policy revolved around implementation of activities based on seven thrust areas, called **Sapt Kranti** viz. extension, irrigation and water management, soil health and fertility, seed management, marketing, research and agriculture diversification. In Eleventh Five year plan, the state could achieve only 3.0% growth against the planned 4.0% for agriculture sector. Since the commencement of the existing agriculture policy, there has been a drastic change in agricultural landscape of the state.

The continuous increase in population, injudicious exploitation of natural resources, unplanned urbanization and industrialization, excessive use of agro-chemicals and increase in consumerism has led to air, water, soil and noise pollution, resulting in multi-dimensional problems. The Agriculture sector has become a non-profitable business due to high costs of production, lack of post-harvest management and processing facilities in the state and reduced economic returns, particularly from small land holdings. Farmers are forced to migrate to urban areas in search of alternate profitable activities, leaving agriculture in the process. Due to inclusion of agriculture in the World Trade agreement, if necessary steps are not initiated for making it a profitable venture by ensuring quality produce at low cost of production, the situation of rural areas may become worse in the near future. The changes in climatic conditions are also becoming a serious concern for agriculture. There is partial scope for expansion of area under cultivation because of the limited area available; however the quality of production can be increased through efficient use of inputs, resources, capital and agricultural knowledge. In the agricultural sector, the exploitation of non-conventional energy resources along with conventional resources will not only reduce the burden on conventional energy sources but also improve the quality and productivity of agricultural produce, which will help in increasing the overall income of farmers.

Therefore, in order to achieve the multidimensional potential of agricultural development in the state, it has become imperative to make the necessary changes in the present Agriculture Policy keeping in view the future challenges of the state.

### **Vision**

Transforming the state into a 'Granary of the Nation' by ensuring food and nutritional security and to improve the quality of village life with inclusive and sustainable growth.

**Mission**

- To achieve 5.1 per cent growth in the agriculture sector.
- To ensure conservation and efficient management of natural resources.
- To encourage private sector participation in the field of agricultural research, development, extension, input management and distribution, and agricultural marketing.

**Objectives**

- To achieve a growth rate of 5.1% in the agriculture sector.
- To develop and popularize appropriate eco-friendly farming systems which would improve the soil health as well as farm income.
- To develop and conserve natural resources for maintaining ecological balance.
- To increase the income of farmers through agricultural diversification towards high value activities, while retaining the core-competence in area of food and nutritional security.
- To develop infrastructure facilities in sectors of seeds, fertilizers, pesticides, agriculture implements, extension services, food processing and marketing by promoting private sector involvement across the agricultural supply chain.

**Strategies**

- Increasing agricultural production and productivity by improving input use efficiency, soil health and developing sodic and waste lands.
- Ensuring timely availability of quality inputs.
- Reducing cost of cultivation by way of better crop management, use of cost effective locally available inputs and adoption of new technologies.
- Increasing the profitability of agriculture produce by way of value addition.
- Promoting utilization of non-conventional energy resources.
- Ensuring participation of private sector.
- Encouraging development of infrastructure at rural level.
- Promoting agriculture based industries in order to make landless labour self-dependent and decreasing the dependency on agriculture.

**Challenges Ahead**

- To ensure food and nutritional security to the state population and increase the productivity of agricultural crops under changing climatic conditions.
- To improve the quality of crop production and reduce the cost of production of agricultural produce, in context of the World Trade Agreement.
- To ensure efficient management and conservation of natural resources.
- To ensure clean and pollution free environment in order to maintain the ecological balance.

- To make small holdings profitable in order to ensure the prosperity of small and marginal farmers.
- To encourage participation of private sector in the agricultural sector, through investments and Public-Private Partnerships.
- To promote agriculture based industries to increase the income and employment of the rural population to reduce the dependence on agriculture.

### **Proposed Interventions**

To achieve the envisaged growth rate during the XII Five Year Plan and thereafter on sustainable basis. Major interventions proposed are as follows;

- Regionally differentiated strategies will be pursued, taking into account the agronomic, agro-ecological, environmental and socio-economic conditions to realize the full growth potential of every region.
- Ensure timely supply of quality inputs such as seed, planting material, fertilizers and other agrochemicals, agriculture machinery, credit, insurance etc. at reasonable rates on timely manner.
- The government will endeavour to reduce the cost of cultivation through enhancing input use efficiency and popularizing indigenous, cost effective and location specific technologies.
- Development of animal husbandry, dairying, poultry, pisciculture, apiculture, horticulture, aquaculture, sericulture and mushroom cultivation will receive a major thrust in the efforts for diversifying agriculture, increasing animal protein availability in the food basket and for generating marketable surpluses.
- The regionalization of agricultural research on all 20 new agro-ecological regions will be accorded high priority. Research and development on frontier science like biotechnology, gene engineering and energy saving technologies, remote sensing technologies, pre and post harvest technologies and technology for environmental protection will be encouraged.
- Emphasis will be laid on development of marketing infrastructure and setting up of agro-processing units in the producing areas to minimize wastage, especially of perishable produce and create off-farm employment opportunities in rural areas.
- Active support for the promotion of cooperative form of enterprises to ensure greater autonomy and operational freedom and improve their functioning will be the endeavour of the state government.
- Promotion of private investment in agriculture and adoption of public-private partnership (PPP) across agricultural supply chain for linking the farmers with the market in efficient and effective manner.

### **Expected Outcome**

With the commencement of proposed Agriculture Policy 2013 , outcomes envisaged are;

- Optimization of farm resources and improved environment.

- Sustainable growth in agricultural production and productivity for assured food and nutritional security.
- Formulation and time bound implementation of need based programmes.
- Transparency in implementation of programmes.
- Introduction of new agro-based enterprises.
- Increased role of private sector in state agriculture development.
- Improved net economic return and family income.

**Performance Indicators**

Progress and achievements of the policy will be assessed at regular intervals on the following major performance indicators;

- Increased agricultural production and productivity on sustainable basis.
- Increased factor productivity.
- Improved or sustained status of natural resources.
- Reduction in the level of nutrients deficiency in soil.
- Increase in net and gross irrigated area.
- Increased cropping intensity.
- Establishment of new agro-industries and marketing centres in rural areas.
- Increased family and per capita income.

## State Agriculture Policy 2012 – Key Areas of Interventions

### 1. Ensuring food and nutritional security to the state population

Food and nutritional security is of utmost importance to the state. It is estimated that by the end of 2016-17, the state population will reach 22.15 crores, which will require about 307.18 lakh metric ton of cereals, 57.51 lakh metric ton of pulses and 44.75 lakh metric ton of oilseeds. For ensuring the nutritional security of the rapidly increasing population, emphasis will be laid on increasing the production and productivity of pulses and oilseeds crops. In order to ensure food and nutritional security, to fulfill the demand of food and other products and to make marginal and small land holdings profitable, agriculture production and productivity will be increased by incorporating high value crops in the cropping system. Efforts will be made by way of value addition and reduction in cost of cultivation to increase the profitability of agriculture produce.

Problem soils will be used for cultivation after their proper reclamation. On the basis of agro-ecological situations and availability of resources, location specific package of practices and farming models will be developed. For increasing the productivity of different component of the cropping systems, appropriate and latest scientific techniques will be followed. Improved high yielding varieties of cereals, pulses, oilseeds, potato, fruits and vegetable crops, management technique of irrigation, fertilizer and diseases and pest control will be evolved. For genetic improvement biotechnological techniques will be adopted. For increasing the productivity and production, timely supply of quality inputs like seeds, fertilizers, plant protection chemicals, agricultural implements and credit will be ensured. Bee keeping will also be promoted for enhancing cross pollination.

#### Food and Nutritional Security

##### Action Points

- Refinement and adoption of existing location specific farming modules for different sizes of holdings in light of available natural and family resources and their extension in similar situations.
- Reduction in cost of cultivation by way of promoting utilization of non-conventional energy resources, improving Input Use Efficiency (IUE); particularly fertilizers and water, use of locally available resources for soil improvement, continuous work on development and adoption of advanced agricultural technologies and better crop management practices for sustainable agriculture.
- Increasing cropping intensity through enhanced area under summer crops and introducing short duration catch crops.
- Effort will be made to control crop damage from wild animals.
- Encouraging private sector participation in input arrangements and their distribution such as seed production and distribution, bio and chemical fertilizers including micronutrients, pesticides and bio-pesticides and agriculture implements.
- Developing mechanism for involving private agencies for dissemination of technologies.
- Development and adoption of new scientific techniques such as resource conservation, biotechnology, precision farming, IPM, IPNM and bullock driven farm machinery specifically for small and marginal farmers.
- Making livestock as integral part of agriculture for improving soil health.
- Integration of dairy, fisheries, poultry, bee-keeping, horticulture and sericulture for enhancing family income.
- Providing additional market support to farmers to maintain food security and increase incomes of farmers.
- Providing facilities for value addition and promoting agriculture based industries in the rural areas for making landless labour self dependent and decreasing the dependency on agriculture.

Agriculture based industries through participation of private sectors will be promoted in order to make landless labour self dependent and decreasing the dependency on agriculture.

## 2. Efficient utilization of natural resources and environment management

The utilization of Natural Resources for agriculture would be ensured considering its technical feasibility, economic viability and eco-friendliness beside its social acceptability.

### 2.1 Soil Management

Since deteriorating soil health is a major obstacle in enhancing agriculture production and productivity on sustainable basis, highest priority will be accorded for launching a “Mission on Soil Health Improvement”. Productive and non-productive areas will be identified using remote sensing techniques to protect conversion of productive lands to non-agricultural uses. In case of any diversion, equal area of waste lands has to be developed and made cultivable on compensatory ground. Land use pattern would be monitored using remote sensing techniques and changes if any would be updated at every five years interval. Waste and degraded lands available in the form of sodic, barren, ravine, fallow and diara would be reclaimed and subsequently utilized for agriculture, horticulture, forestry and pasture.

The sodic reclamation and their management technology would be made more cost effective and sustainable. The cost of sodic reclamation in shallow water table areas would be reduced through use of salt tolerant crops and their varieties.

#### Soil Management

##### Action Points

- Launching of “Mission on Soil Health Improvement” for improving the condition of soil on mission mode.
- Development of Village Level Soil Fertility Maps for assessment and distribution of fertilizers on the basis of village level fertility maps.
- Identifying productive and non-productive lands using Remote Sensing Techniques to protect conversion of productive lands to non agricultural uses,
- Promoting Resource Conservation Technologies (RCT) for improving the efficiency of inputs i.e. fertilizers and irrigation through land leveling and adoption of conservation agronomic practices.
- Promoting the use of crop residues/ organic material, green manuring, crop rotations involving legumes, NADEP, Vermi-composting to improve the physical and nutrients status of the soils.
- Forbidding the burning of crop residues to improve soil health and protect the environment.
- Promoting the use of farm machineries like Reaper Harvester.
- Strengthening and establishment of Soil Testing Laboratories for analyzing primary, secondary and micro nutrients.
- Strengthening the coordination between soil testing labs working under State Agriculture Universities, Agriculture Department, Cooperative and Private Sectors for avoiding duplication, saving of time and money.
- Providing soil amendments such as gypsum, paper mill sludge, press mud, etc. at affordable prices to farmers.
- Providing suitable incentive/subsidy for setting up of commercial Vermi Hatcheries and Vermi Compost units on dairy routes.

Soil amendments such as gypsum, paper mill sludge, press mud, etc. will be made available to farmers at affordable prices. Use of soil health cards will be popularized and organic farming will be promoted to improve and maintain soil health. The State will encourage setting up of Soil Testing Laboratories by private entrepreneurs to provide soil

testing facilities to the farmers. Private sector will be given financial incentives like capital investment subsidy etc. for establishing soil testing laboratories to make their operation viable. The farmers will be encouraged to get soil samples of their fields tested at least once in three years for adoption of efficient cropping system and crop nutrient management.

## 2.2 Water Resource Management

Considering the adequate water resources of the state, there is ample opportunity to develop irrigation facilities further. Emphasis will be given on development and management of irrigation facilities in order to improve the water use efficiency. Maximum emphasis will be placed on on-farm water management to improve Water Use Efficiency (WUE) by promoting efficient systems such as sprinkler, drip irrigation, HDPE pipes, which help to optimize the benefits from the available water resources.

To bridge the gap between surface irrigation potential created and utilized, water distribution to be operated and managed by the Water Users Associations (WUAs). In high water table areas, shallow tubewells preferably solar water pumps will be promoted to save the energy and operational cost. Irrigation charges will be rationalized to promote conjunctive use of surface and ground water resources in canal command areas. Cropping intensity will be increased and water guzzling crops will be promoted in shallow water table areas, particularly in the canal commands. Along the canals, in seepage zones bio-drainage measures will be adopted and interceptor drains will be constructed.

### Water Resource Management

#### Action Points

- Encouraging on-farm water management practices such as use of Laser Leveling and improved irrigation methods and systems i.e. use of sprinklers, drip and HDPE pipes for improving Water Use Efficiency (WUE).
- Providing incentives to promote efficient Solar Pumps at reasonable cost in shallow water table areas, especially in eastern parts of Uttar Pradesh and head reaches of Canal Commands to save the energy and operational costs.
- Bringing legislation to prohibit ground water exploitation for any purpose without prior Government approval, particularly for the critical areas.
- Constitution of a commission to review the expansion of area under water guzzling crops in unsuitable areas.
- Drought management, including contingent cropping strategy, promotion of drought and flood tolerant varieties and establishing Seed Banks in more vulnerable areas to save cropped area for required food production..
- Awareness building and educating farmers for water saving and efficient use of water, including conjunctive use of surface and ground water.
- Encouraging rain water harvesting within the watershed/village territories to reduce loss of productive soils through erosion.
- Recharging ground water particularly in declining ground water and rainfed areas and recycle harvested water for irrigation purposes.
- Rationalizing irrigation rates to improve water use efficiency and minimize wastage of waters especially in canal commands.
- Initiation of flood control and drainage programmes to manage the water flowing from the rivers from Nepal and utilizing it for creating reservoirs and generating power.
- Promoting conjunctive use of ground and surface water resource in an effective manner to deal with the problems of water logging and inadequate recharge.
- Promoting conjunctive use of ground water in poor quality ground water areas to minimize the ill effects of poor quality water on crop growth and its yield.
- Encouraging lining of canals to help in reducing the water seepage and waterlogging.
- Promoting bio-drainage and construction of interceptor drains along the canals in seepage zones.

Priority will be given for development and maintenance of drainage network in waterlogged areas. Irrigation frequency will be increased through creating additional irrigation potential with special emphasis on use of solar pumps. Desilting and rehabilitation of canals will be given priority to improve water carrying capacity and assured water availability at the tail ends. Flood-prone and water-logged areas will be identified and developed for their economic use by implementing appropriate measures.

Ponds, tanks and water bodies will be renovated to conserve moisture and recharge ground water in declining ground water table areas. A legislation to prohibit ground water exploitation for any purpose without prior Government approval will be brought about for the areas having reached to the critical water level. In these areas, less water requiring crops will be promoted. A commission will be constituted to review the expansion of area under water guzzling crops in unsuitable areas eg. mentha and rice in Bundelkhand. For efficient use of irrigation water, improved irrigation methods will be popularized and drip and sprinkler systems will be promoted in undulated areas.

### 2.3 Environment Management and climate change

State's natural resources viz. land, water and flora and fauna are being depleted on temporary or permanent basis. Endangered traditional genetic plant material will be conserved and used for development of high yielding insect-pest resistant varieties with the use of biotechnological tools and other plant improvement methods. Ground water contaminated areas with arsenic, fluoride, nitrate, iron and other heavy metals will be identified and research projects will be supported to develop the cost effective technologies to combat these problems. To reduce soil and water pollution problem due to continuous use of inorganic fertilizers and other agro-chemicals, the integrated approach i.e. IPM and IPNM will be popularized. Safe disposal of industrial and sewage water will be ensured.

#### Environment Management

##### Action Points

- Carrying out research for development of new genotypes, land use systems including opportunities offered by conservation agriculture and agro-forestry, evaluation-evaluate the mitigation potential of bio-fuels, etc.
- Conserving endangered genotypes/germplasms and their utilization for development of high yielding varieties suitable for changing climatic conditions.
- Developing system on collection and sharing of information among stakeholders on climate change and its impact on agriculture.
- Developing system for integrated management of rainwater, surface, and ground water.
- Training of officers at the state level to enable them to incorporate climate change concerns in all decisions for implementing developmental activities.
- Identifying polluted ground water areas and research on development of cost effective technologies for their use.
- Management of soil and water pollution.
- Safe disposal and utilization of urban and industrial waste and residues.

The climate change is becoming a major concern in recent years. The emerging issue of impact of climate change on agriculture would be addressed by taking proactive measures and developing effective strategies for each agro-ecological region to reduce the vulnerability to climate change. Effective and reliable information and communication

systems, needed climate services, contingency planning and resource allocation will be put in place and will be further strengthened.

Educational and public awareness programmes on effect of climate change on agriculture would be developed and implemented. A system would be developed on collection and sharing of information on climate change and its effects among stakeholders on climate change and its effects. Research would be carried out for development of new genotypes, land use systems including opportunities offered by conservation agriculture, agro-forestry and mitigation potential of bio-fuels. Training of officers will be promoted to enable them to address the climate change concerns in all decisions for implementing developmental activities

### 3. Input Management

To increase agriculture production, seed, fertilizers, biofertilizers, biopesticides, irrigation, plant protection equipments, farm machinery, credit and technology will be provided as per farmers need at the reasonable price on timely manner.

To ensure the availability of improved and quality seeds, production of breeder and foundation seed will be done at agricultural universities and Government farms. State Agriculture Universities would be equipped for adequate production of breeder seed and Mother Planting Materials by setting-up of micro-tuber and tissue culture labs. Monitoring by Seed Committee duly constituted by Ministry of Agriculture, GOI will be ensured for maintaining quality of breeder seeds.

#### Input Management

##### Action Points

- Assessing requirement at district level and ensuring the availability of quality inputs in time.
- Extensive publicity of non-monitory inputs.
- Producing seeds, bio-fertilizer, bio-control and bio-chemicals at local level.
- Creating single window system for timely availability of Agriculture Inputs.
- Providing Training & Demonstration on input use.
- Motivating farmers for increased use of kisan credit card (KCC).

Timely availability of quality seeds of improved varieties/ hybrids at appropriate price to the farmers for enhancing agriculture production and productivity will be a major thrust area of the state. Five Year Seed Production Rolling Plan will be developed with an objective of inducting area specific high yielding, pest resistant new varieties/ hybrids and phasing out older varieties susceptible to various diseases and pests. Varietal Replacement Rate (VRR) to be

#### Seed

##### Action Points

- Increasing Seed Replacement Rate (SRR) and Variety Replacement rate (VRR).
- Promoting private institutions, seed villages, and farmer groups for producing certified seeds.
- Forming Area specific Seed Producer Groups.
- Establishing seed processing units.
- Producing hybrid seeds and motivating for its use.
- Establishing Seed Bank for flood & drought conditions.

appropriately improved along with Seed Replacement Rate (SRR). Requirement of various category seeds i.e. Breeder, Foundation and Certified seeds will be assessed

periodically to ensure timely production and supply by various Seed Producing Agencies. Institutional Mechanism will be strengthened for smooth supply of quality seed in requisite quantities. A Memorandum of understanding (MOU) would be signed between various Seed Producing and Distribution Agencies. Formation of Area specific Seed Producer Groups will be promoted. Foundation and certified seed production of suitable varieties will be undertaken in areas where they have to be popularized in order to reduce transportation cost and ensure timely supply. For production and distribution of hybrid seeds, the participation of both public and private sectors will be encouraged. The use of varieties/ hybrids/ input produced by private agencies will be promoted after multi location trials. Seed Banks will be established to fulfill the contingent requirements of flood and drought prone areas.

To motivate production of certified seeds, processing units and other infrastructure will be established. Seed production infrastructure of the States would be strengthened in terms of institutional arrangements, processing, storage facilities and distributions networks.

The use of balance fertilizer will be promoted by strengthening the soil testing programme. The present ratio of N.P.K. is 15:5:1 (2011-12) in state, which will be brought down to the level of 4:2:1. Requirement of fertilizers will be worked out on the basis of soil testing results and crop coverage. Buffer stock of fertilizers especially Phosphatic and Potash will be arranged before season by preparing long-term plan. Thrust will be given on improving Fertilizer Use efficiency (FUE). Large Scale Training programmes and awareness campaigns will be organized to popularize FUE. The use of micro-nutrients will be promoted in the deficient areas on the basis of soil analysis results. Use of bio-fertilizers in general and Phosphate Solubilizing Bacteria (PSB) culture in particular will be promoted on mass scale in light of increased cost of phosphate fertilizers. Demonstration on customized, fortified and liquid fertilizers will be organized on massive scale to improve Fertilizer Use Efficiency (FUE). Treated sewage available at Sewerage Treatment Plants (STP) will be used as compost in peri-urban areas.

#### **Fertilizer**

##### **Action Points**

- Assessing and making availability of fertilizers on the basis of soil testing and crop coverage.
- Promoting the use of balanced fertilizers.
- Promoting the use of micronutrients, customized and fortified fertilizers.
- Increasing the use of bio-fertilizer and bio-compost.
- Promotion of IPNM and fertigation.
- Promoting Organic Farmers Association to facilitate certification of the organic products.
- Strengthening of labs to produce bio-fertilizers.

To make timely availability of quality fertilizers, participation of public, private and cooperative sectors will be ensured. Effective measures will be taken to ensure quality and prevent the adulteration of fertilizers. Analysis of fertilizer sample will be conducted for quality control under the provisions of fertilizer control order and essential commodity act. To fulfill the nutritional requirements and maintaining the soil fertility, use of bio-fertilizer, compost and green manuring will be promoted. For the production of bio-

fertilizers and its quality control, laboratories and their notification as per rule will be ensured.

Suitable incentive for Organic Farming will be provided to farmers, harvesting organically certified crops. A drive will be launched for augmenting production and use of nonchemical fertilizer suited to different farming situations. This would need appropriate thrust on research and extension programmes. Organic Farming Systems will be identified for each agro-ecological region. Organic Seed Banks will be opened. Organic Farmers Association will be promoted in order to facilitate certification of the products. A separate agency would be set up for certification of organic products. A separate policy for organic production will be developed.

Pest Surveillance System will be developed in order to provide prior information regarding occurrence of pest attack. Awareness will be created for enhancing use of bio-pesticides and reducing use of harmful pesticides through campaigns and training programmes. Special programme on IPM will be conducted in order to control disease & pest. Production and distribution of quality bio-agent and chemicals will be ensured. New innovations and researches will be encouraged. Support would be extended to private agencies for establishment of facilities for production of bio-pesticides. Referral labs would be established to maintain quality of agrochemical and bio-pesticides.

#### **Plant Protection**

##### **Action Points**

- Regular pest surveillance to provide prior information regarding occurrence of pest attack.
- Campaigning and trainings for enhancing use of bio-pesticides and restricted use of chemical pesticides to protect environment.
- Promotion of IPM.
- Strengthening of Labs for production of quality bio-agents and bio-chemical products.

Emphasis will be given to promote environment friendly bullock and tractor driven multipurpose equipment for timely execution of various farm activities. Support for Zero-till Seed-drill, Laser Leveler, Rotator to minimize cost of cultivation and enhance the input use efficiency will be expanded. Preference will be given to those who adhere to timely sowing/ planting. Since the average holding size is small, greater thrust would be given to power tiller and small farm tools for promoting farm mechanization. Local fabrication of farm tools would be promoted. Farmers would be trained to use integrated safety gadgets to reduce farm machinery related accidents. A critical farm mechanization gap, which needs immediate attention, would be identified for providing budgetary support to ensure effective solution in joint institution-industry mode.

#### **Agriculture Machinery**

##### **Action Points**

- Promoting the development of multi purpose agriculture implements.
- Promoting local fabrication of farm tools.
- Encouraging private sector for production, distribution and repair of implements at district/ regional level.
- Encouraging custom hire services.

The private sector (village artisan) will be encouraged for manufacturing, repairing and distribution of agriculture implements. Custom hire services will be promoted for ensuring availability of agriculture implements and their maintenance.

The operation of canals will be according to the local demand. The use of tube-well irrigation and minor irrigation facilities will be promoted in higher ground water level areas. Lining of canals would be encouraged to reduce seepage losses and manage waterlogging situations. To enhance per unit water productivity, emphasis would be laid on on-farm water management techniques such as use of HDPE pipes, sprinkler and drip irrigation systems and land leveling for controlled irrigation to optimize the benefits from the available water. Rain water would be conserved on the motto of "khet ka pani khet mai; gaon ka pani gaon mai" in the fields and within village boundaries on watershed approach and harvested water will be recycled for irrigation purposes. Conjunctive use of ground and surface water resource would be promoted in an effective manner to deal with the problems of water logging and inadequate recharging. In eastern Uttar Pradesh, special flood control and drainage programme will be taken up to manage the water flowing from the rivers from Nepal and would be utilized for creating reservoirs and generating power. Efforts will be made to increase electric supply and fuel availability for timely agricultural operation.

#### **Irrigation**

##### **Action Points**

- Ensuring irrigation water in canals up to tail end.
- Promoting efficient irrigation devices.
- Promoting tube wells in high water table areas.
- Promoting non-conventional energy via-a-vis ensuring availability of diesel and electricity.

Presently the farmers have to go to different places to procure the agricultural inputs. Therefore, in order to ensure timely supply of all the inputs at one place through regulated agency, a single window system will be promoted.

As per the credit need of the farmers for agriculture purposes, the delivery of short and long term credit will be enhanced and institutionalized farmers will be encouraged. Availability of easy credit on low interest rate for agriculture and allied sectors namely; animal husbandry, dairying, poultry, pisciculture, apiculture, horticulture, aquaculture, sericulture will be ensured through Rural Banks, Cooperative Banks and village level Cooperative Societies as per the need of the farmers. In order to improve loaning, micro branching facilities at village level will be developed on pilot basis. KCC smart cards would also be issued to withdrawing money from the account. Mechanism will be developed to cover share croppers under crop loan scheme. Cooperative structure would be strengthened to improve timely supply of inputs. Separate targets

#### **Agriculture Credit**

##### **Action Points**

- Promoting the use of credit card and making available the short and long term loan for agriculture purpose.
- Making allotments of money for meeting the non over due cover.
- Making arrangements of soft loan for the supply of agriculture inputs.
- Providing Kisan Credit Card (KCC) facility to all eligible farmers.
- Micro branching at village level to improve accessibility and loaning amount.
- Developing and piloting Policy of KCC smart cards.

for small and marginal farmers will be set in annual credit and agricultural insurance plan. Emphasis will be given to distribute the agricultural inputs through cooperatives alongwith soft loan arrangement for inputs. In order to make financial support system transparent, efforts will be made to develop appropriate mechanism to provide financial assistance in transferring cash to the bank accounts of beneficiaries. Self help groups and non-government organizations (NGOs) will be motivated for facilitating the inputs arrangement. The use of *Kisan* credit card will be enhanced in order to facilitate the farmers for availing agriculture credit and other facilities.

#### 4. Strengthening of Extension and Agricultural Advisory Services

The agriculture extension system has a vital role in overall development of agriculture sector. In the state, the extension work is primarily done by the agriculture and other concerned departments. Besides this, a large number of extension institutions namely, Krishi Vigyan Kendra and Krishi Gyan Kendra supported by state and central government are also engaged in carrying out extension activities.

For timely transfer of new technologies and strengthening of extension system, all agencies involved in the delivery of information and advisory services to the farming communities will be strengthened and modernized. Organizational restructuring such as implementation/ adaptation of ATMA and similar other models will be done to carry forward the improved technologies at the Nyay Panchyat level. In the changing scenario beside public sector, agencies such as agri-clinics, farmer's organizations, farmer's schools, cooperatives, Panchayati Raj Institutions, NGOs and para-technicians will be encouraged for delivering extension services. Plural extension delivery approaches such as establishment of rural knowledge centres (RKC), ICT based extension, Farmer to Farmer extension, involvement of NGOs and private sector would be employed to

##### Strengthening of Extension and agricultural advisory services

###### Action Points

- Developing institutional mechanism for strengthening coordination among various extension agencies namely; Department of Agriculture, AH/Dairy, Fisheries, Horticulture, SAUs, Agriculture Colleges, KVKs, Research Stations, Central Institutes, Private Input Agencies (Fertilizers, Seed/Pesticide, Agriculture Implements, Agri-clinics), Print and Electronic Media, Bank supported Farmers Clubs and Farmer Producer Groups for effective extension activities.
- Continuing Agriculture Technology Management Agency (ATMA) as district level forum for extension.
- Establish Integrated Farming System Models on Ring Road Concept for Rural Development.
- Ensuring representation of Private Entrepreneurs (Fertilizer, Seed, Pesticide, Farm Implements, Agri-business/Agri-clinic) in ATMA.
- Establishment of Information and Training Chaupal in collaboration with KVKs at Tehsil level.
- Establishment and strengthening of Agriculture Technology Information Center (ATIC) at each Agricultural Universities for the purpose of providing technical know how to the KVKs, Extension Functionaries of the concerned departments at district level.
- Initiating Mobile services for faster dissemination of technologies, weather based agro-advisories and marketing information.
- Making KVKs as knowledge portal and center for extension, training activities at district level.
- Development of Strategic Research Extension Plan (SREP) for identification of the farmers' problems and farmers-scientist interactions (FSI) and development of appropriate technology.
- Strengthening the linkages between Research, Extension and Farmers to facilitate a smooth transfer of technology to the farmers.
- Encouraging participation of women in extension activities.
- Regular Uploading/updating the information regarding subsidy under various schemes, availability of various inputs alongwith their prices, details of beneficiaries on the websites of concerned departments.

strengthen the extension activities. Opening of 'Information Kiosks' by agri-entrepreneurs will be encouraged. Farm Information and Advisory Centre will be opened in all Blocks. The role of Kisan Sahayak to work as single window for all extension activities will be promoted.

Present agriculture extension system is not designed for integrated requirement of farmers. Extension and advisory service delivery models will be designed to provide one-stop solution for all farming needs. According to the multi-dimensional needs of the farmers, the agriculture extension system to be oriented on the basis of farmers-scientist interface, socio-economic situation of the farmers, nutritional requirements, food security, employment generation etc.

At village level, the group extension approach will be promoted by involving farmers' cooperatives, farmer's commodity groups and self-help groups etc. so that the problems in marketing and credit facilitation can be eliminated.

For speedy communication of latest agricultural innovations, the use of information technology and telecommunication will be promoted. The private sector institutions will be motivated to establish information centers and e-kiosks at district and Nyay Panchayat level. For human resources development, training will be organized from time to time with high priority to educate and increase the skill of agriculture extension workers and farmers. For training, the infrastructure facilities at agriculture training centers, Krishi Vigyan Kendras, Krishi Gyan Kendras and agriculture universities will be strengthened. KVKs will be knowledge portal and center for extension activities at district level. Agriculture Technology Information Center (ATIC) would be set-up/ strengthened at each Agricultural Universities. The KVKs in the districts would be made nodal centre for identifying researchable issues in the farm sector. Mobile based extension services delivery model would be promoted for faster dissemination of technology, weather based agro-advisories and marketing information.

For identification of the farmers' problems vis-a-vis for strengthening of development technology, farmer-scientist interactions will be encouraged. Use of SREP and interface programme will be ensured. In order to make the extension service financially viable, the provisions for extension service charges will be considered. The half of the farming community belongs to women, but their participation in training and extension activities is almost negligible. The necessary institutional, programmatic and structural reforms will be ensured.

Considering the farmers problem in marketing their produce, the agriculture extension system will be made demand and market driven. To identify the problems, the farmer's participation will be ensured and location specific work plan based on appropriate technology will be prepared, implemented, monitored and evaluated and necessary steps will be taken on the basis of feedback.

## 5. Promotion of Agricultural Diversification

The average holding of the state is 0.80 hectare, which is uneconomical; hence integration of fruit and vegetable production, sericulture, pisciculture and other enterprises with crop production is necessary for enhancing income and livelihood of farmers, especially smallholders. Integration of enterprises will not only increase per capita production and income and employment opportunities, but also make agriculture profitable and ecologically sustainable. Greater emphasis will be laid on popularizing the mixed farming/ inter-cropping, especially in the rainfed areas. In order to empower the farmers economically, vegetable and flower cultivation will be promoted in a big way which would also lead to generation of additional employment. State level master plan for agriculture diversification will be developed.

### Diversification of Agriculture

#### Action Points

- Diversification of cropping system through inclusion of high value crops and their varieties.
- Diversification of farming system through introduction of enterprises such as animal husbandry, dairying, poultry, horticulture, pisciculture, sericulture, aquaculture, mushroom cultivation, etc.
- Development and dissemination of demand driven latest technologies to farmers and allied entrepreneurs.
- Strengthening of agri-business activities, post harvest management and value addition through capacity building.
- Providing market intelligence and information through information technology.
- Improving research and extension linkages.
- HRD and capacity building of farmers, extension functionaries and NGOs.
- Formation of commodity based Farmer Producer Groups in Agriculture, Horticulture, Dairy, Fisheries, Sericulture and establishing linkages with market.

### 5.1. Promotion of Horticulture for Economic Upliftment of Farmers

Keeping in view the potential of horticultural crops in the state, the production of fruits, vegetables, potato, spices, flowers, medicinal and aromatic plants, aquaculture, mushroom production will be promoted along with crop production on the basis of available resources in various agro-ecological situation. The quality regulatory systems, regional nurseries, low tunnel poly houses, shednet house, use of plastic and tissue culture laboratories will be promoted along with supply of improved planting materials to the farmers. Drip and sprinklers systems will be promoted to improve water

### Horticulture

#### Action Points

- Promoting area specific suitable fruits, vegetable, spices and flowers for harvesting maximum production.
- Encouraging the use of IPNM and IPM technologies with thrust on bio-agents, bio-pesticides to reduce harmful impact of chemical pesticides, especially in vegetables.
- Production of quality planting material. Encouraging Techniques like Nurseries in Low Tunnel Poly House (LTPH), shednet house for changing climatic conditions.
- Promoting cultivation of area specific aromatic and medicinal plants and spices and linking with proper marketing facilities.
- Encouraging private entrepreneurs and food processing companies to enter into marketing contracts with farmers growing horticultural crops.
- Encouraging growers, co-operatives/farmer producer groups and developing wholesale markets exclusively for fruits, flowers and spices.
- Setting up of floriculture and post harvest management centres for marketing with suitable forward linkages.
- Promoting low cost storage structures/ technologies for prolonging the shelf life of produces and minimize losses.
- Rejuvenating old and unproductive orchards.
- Conservation and improving endangered varieties.

use efficiency specially in declining ground watertable areas. Rejuvenation of old and unproductive orchards, conservation and improvement of endangered varieties of fruits and development of herbal medicines will be encouraged. State will promote post-harvest management technologies and improved processing techniques along with extension of improved horticultural techniques. The Government will actively encourage private entrepreneurs and food processing companies to enter into marketing contracts with producer groups/ co-operatives and farmers growing horticulture crops. Transport subsidy to distant places and support for brand promotion

## 5.2. Strengthening of Animal Husbandry and Dairy

For overall development of animal wealth, "Pashu Vikas Niti" would be framed. To fulfill the demand of the animal products, state animal breeding policy and indigenous breeds improvement programmes will be implemented. As per states breeding policy, breed specific to an area will be promoted through semen production and genetic improvement. "Dugdha Niti" to ensure nutritional security, increase employment opportunities and family income of small and marginal farmers will be enforced.

Veterinary health system will be strengthened for animal health care and eradication of sterility through development and extension of new technologies in view of export promotion. Efforts will be taken for compulsory identification and vaccination of animals. Animal nutrition and non-conventional feeds will be promoted along with fodder development programme in which farmers and private sector participation will be ensured. Under poultry development, special emphasis will be given to backyard poultry. Due attention will also be given to encourage table (etable) birds at village level. Focus will also be kept on development of small animals like sheep, goats and pigs etc. by strengthening Uttar Pradesh Livestock Development Board.

### Animal Husbandry and Dairying

#### Action Points

- Framing of "Pashu Vikas Niti" for integrated development of livestock.
- Promoting indigenous breed improvement programme.
- Strengthening animal health care and initiating programmes on eradication of sterility.
- Formulating programmes on fodder development and non-conventional feeds.
- Starting diploma and vocational certificate courses in feeding, breeding and health management, processing and value addition for dairy technicians and farmers.
- Strengthening concept of paravet at village level.
- Promoting the area specific breeds through creating semen production and genetic improvement facilities.
- Promoting backyard poultry in rural areas.
- Strengthening cooperative societies for milk production enhancement.
- Promoting marketing of milk and milk products through cooperative societies.
- Strengthening infrastructural facilities for ensuring availability of quality milk and milk products.
- Making arrangements for quality breeds of animals for enhancing milk production.

Diploma and vocational certificate courses in feeding, breeding and health management, processing and value addition shall be taken up on priority for training dairy technicians and farmers.

### 5.3. "Blue Revolution" Promotion of Fisheries

Fisheries and fish products hold an important place in generation of rural employment and economic upliftment. Keeping this in view, strategies for fisheries development as "Blue Revolution" at village, districts and state level will be taken up. Programmes for making fish production self dependent and export oriented will be developed and for this bank credits, subsidies, technology transfer and human resource development will be ensured.

In order to increase the inland fish productivity and production from 3250 Kg/ha and 4.32 lakh metric tons to 5250 Kg/ha and 9.00 lakh metric tons respectively by the end of XII Five Year Plan in the state, besides implementing integrated fish farming programmes, new water resources such as waterlogged areas, lakes, rivers and alkaline/saline areas will be tapped for fisheries development. Village ponds will be leased out to increase employment opportunities and nutritional security through pisciculture. Special programmes will be developed for improving the productivity of large and medium ponds available in the government sector. Establishment of fish feed production plant for ensuring availability of quality fish feed, private hatcheries will be promoted for quality fish seed. Fish belt scheme will be implemented under area approach system. Integrated fish farming will be promoted and the important catfish cultivation will also be promoted on the basis of economic and nutritional value. Programmes will be developed and implemented for ornamental fisheries and breeding facilities at local level for specialized fish products such as shrimp. Private sector participation will be ensured in promotion of fisheries production and proper marketing arrangements. Support to establish "Fish Co-operative Societies" will be provided. Rural based low cost post-harvest processing and value addition techniques for diversified fish products will be ensured so as to enhance income of fish farmers in the State.

#### Fisheries "Blue Revolution"

##### Action Points

- Ensuring sufficient production of fish and fingerlings for making the state self reliant.
- Doubling the fish and fish seed production.
- Promoting specialized fish production such as shrimp and ornamental fish production.
- Encouraging establishment of hatchery and nursery in the private sector.
- Integrated development of ponds and lakes areas.
- Integrated development of rivers and flood prone/ waterlogged areas and alkaline/saline areas.
- Establishing cold chain for fish marketing.
- Conserving fisheries resources.
- Control water hyacinth to increase catchability and dissolved oxygen level for better fish growth.
- Promote Aeration Devices for oxygenation of ponds/ water bodies for improved fish growth and to manage their death.
- Encouraging establishment of improved fish feed industry in the private sector.
- Improving human efficiency through organizational structure and utilization of information technology.
- Establishing fish mandis for marketing of fishes in the state.
- Establishing rural based low cost post harvest processing and value addition units for diversified fish products to enhance income of fish farmers in the State.

### 5.4. Special programme for improving Sugarcane Productivity

Sugarcane is a main cash crop of the state. The state has highest area under this crop in the country having highest production of sugar i.e. 35% of total country's total

production. However, the productivity of cane is 56.7 mt per ha which is less than the national average. Hence, the target under cane development policy is to increase total cane production by increasing its productivity. Integrated cane development schemes will be implemented by tailoring appropriate new varieties for waterlogged and problematic soils. Farmers will be encouraged to go for inter-cropping of sugarcane with crops like mustard, wheat, potato, lentils, urd, moong etc. for high yield.

Timely supply of inputs and effective measures to control various diseases & pests will be ensured to harvest good yield. Use of organic fertilizers, bio-fertilizers, bio-compost and vermi compost to enhance sugarcane yield would be promoted. Timely supply of cane to sugar mills and payment of cane dues will also be ensured to sustain the interest of the farmers. Item 3e of 3 of 1966 Sugarcane Control Order would be made mandatory which says payment must be made within 15 days after purchase, in case delayed interest have to be paid to farmers. In order to ensure complete crushing of sugarcane produced, establishment of new sugar mills and enhancement in crushing capacity of few old mills will be undertaken. Farmers would be made aware of the new rules and regulations to avoid their exploitation by the sugar mills.

#### **Sugarcane Development**

##### **Action Points**

- Introduction of new high yielding varieties containing high sugar content for enhancing productivity.
- Encouraging farmers to go for inter-cropping of sugarcane with crops like potato, lentil, Rape Seed Mustard in autumn and moong, urd in spring planted sugarcane etc. for higher economic returns and better soil health.
- Promotion of organic fertilizers, bio-fertilizers, bio-compost and vermi compost to enhance sugarcane yield.
- Developing sugarcane varieties for water logged and saline, sodic conditions and standardization of production techniques.
- Integrated sugarcane development, control of insect-pest and ensuring availability of inputs.
- Timely payment of profitable cane prices.
- Modernizing the existing mills and establishing new sugar mills to increase the crushing capacity.

#### **5.5. Promotion of Silk Production**

There is ancient tradition of sericulture in Uttar Pradesh and state is one of the leading silk cloth producers. The climatic conditions are favorable in the state for sericulture production and there is ample scope for Bivoltine silk rearing as an important supplementary enterprise for farmers and landless labourers. The state sericulture farm will be made self-sustainable through participation of cooperative societies and self help groups. Mulberry plantation will be encouraged under private sector participation as well. Promotion of mulberry cultivation, especially in the

#### **Sericulture**

##### **Action Points**

- Strengthening sericulture through participation of cooperative societies and self help groups.
- Encourage nutritive new high yielding mulberry plantation in private sector.
- Promoting region and season specific silk worm races and timely payment of profitable cocoon prices.
- Old mulberry plantation replaced by high yielding varieties containing high protein/silk content for enhancing productivity.
- Promoting women participation in sericulture activities.
- Strengthening of seed production centre.
- Strengthening of Cocoon Market.
- Providing subsidy to farmers to purchase rearing keetpalan and farm equipment.
- Promoting Eri silk production in private sector.
- Promoting Arjun plantation in forest areas/Gram Samaj land and Barren land for production of Tasar silk.
- Employment generation by mulberry/Eri/Taar culture for cocoon production.
- Organize regular training for improving new technology knowledge.

non-traditional districts, will be taken up on a cluster approach with strict implementation of Nucleus Village concept, for BV or CB races through concentrated efforts and effective monitoring by the Department. Encouragement for Eri and Tasar silk will also be given in both public and private sector. Training institute would be established for providing training to farmers and entrepreneurs on sericulture.

## 6. Development of Post-Harvest Management and Food Processing facilities

Large quantities of food grains, fruits and vegetables are wasted every year due to lack of post-harvest management and processing facilities. Because of this, we are also not fetching the remunerative prices for our agri-produce in the national and international markets. The technologies for sorting, grading, packaging, marketing infrastructure, storage, processing and transportation will be promoted along with generation of new technologies in order to minimize the post-harvest losses and assuring enhanced profit to farmers through value addition. Further, to provide storage facilities at production centers, facilities of zero degree cool chambers etc. will be created. Priorities will be given for establishing the cool chain, provision of pre-cooling facilities and cold storages in the terminal markets. To promote food processing units in the state, rebate and various concessions would be provided as per the provisions made in the state industry policy. Scheme for establishing Pack Houses/ Central Sorting, Grading, Packaging Centers will be designed and implemented for major fruits and vegetables produced in the state.

The state food processing policy will be designed to promote and establish adequate arrangements between the farmers and processing units, so that farmers get the remunerative prices and the processing unit will get the uninterrupted supply of quality raw material. In order to promote the marketing of processed products, linkages will be strengthened among farmers, processors, exporters and Government institutions.

### Post Harvest Management

#### Action Points

- Creating village level storage infrastructure/Silos for farmers to store and marketing them at appropriate time to fetch maximum price of their produce.
- Providing subsidy to farmers to purchase crates and other equipments.
- Creating major storage facilities at important market centres by State Agriculture Marketing Board to facilitate scientific storage of produce till it can be sold at remunerative prices.
- Providing training to individual farmers and farmers groups for proper handling and packaging of vegetables and fruits.

### Food Processing

#### Action Points

- Encouraging value addition of products at local level.
- Encouraging collaboration between the producer co-operatives and the corporate sector to promote agro-processing industry.
- Promoting private sectors in food processing
- Establishing quality testing laboratories.
- Utilizing crop waste in value added by-products.
- Branding of products.
- Creating strong linkages among farmers, processors, exporters and Government institutions.
- Developing appropriate machineries and technologies for processing at local level.
- Linkages of food parks with Agriculture/Horticulture Development Zone.
- Rationalizing laws, rules and regulations related food processing.

Investment and availability of credit will be ensured for establishing processing industries. Private sectors will be promoted in food processing sector. Recognizing the need for evolving quality consciousness in the food processing sector, quality testing laboratories will be established. Various schemes of the Ministry of Food Processing Industries such as Technology Upgradation, Establishment of Cold Chain, and establishment of Mega Food Parks etc will be aligned with the state food processing policy for enhancing the investment in this sector.

## 7. Promotion of Farmer Friendly Marketing Setup

Strengthening of agriculture marketing setup will be accorded the top priority in the state. The system of marketing by mandi will be made liberal and all the rules and regulations of Mandi Act, which act as hindrance for ensuring remunerated prices to farmers for their produces will be reviewed and necessary amendments will be made in the APMC Act.

In order to strengthen the marketing infrastructure, at least one mandi will be established/ developed in each tehsil. Separate mandis for specific agriculture commodity like basmati rice, fish, fruits, vegetables and flowers etc. will be established and participation of private sector will be encouraged for their commercial consumption. Hath-Paith and animal market facilities will be developed in the administrative control of the Panchayats.

In order to minimize the control of middlemen in the process of agricultural marketing, farmers, cooperative societies and farmer groups will be encouraged for direct marketing. Facilities for Raitu Bazar/ producer market will be developed for marketing the products produced by small and marginal farmers. Provisions for bulk purchase directly from farmers by traders will be made for traders who are capable of purchasing more than 50000 tonnes of specific agriculture produce in a financial year and to sell it out of state or within state to processing units. Production as per the demand of the market will be encouraged and marketing facilities will be ensured. Private/cooperative societies will be encouraged for establishment of infrastructure such as link roads, transport and cold storage, cool chain and processing units for perishable agricultural produce.

### Farmers Friendly Marketing Setup

#### Action Points

- Strengthening market setup.
- Construction of Mandi at Tehsil level.
- Establishing Hath-Paith and animal markets under administrative control of Panchayat..
- Subcontracting of market management to Small Farmers Agri-Business Consortium (SFAC) and private sector.
- Introducing E-Trading and unified licensing system.
- Development of market oriented extension system for new commodities, grades and standards, food safety etc.
- Encouraging future market to minimize risk and uncertainty in prices of agriculture produce and establishment of commodity exchange.
- Establishing facilities for grading, standardization, packaging and certification in the market area.
- Establishing input centers in Mandis.

In order to minimize the post-harvest damage and ensuring remunerative prices to the producer, facilities for sieving, sorting, grading and drying of agriculture produce will

be encouraged and established at village/ block level and for this, involvement of private sector will be encouraged.

In order to store the produce in the storage at mandi/sub-mandis in the anticipation of getting remunerative prices, facilities for credit on easy terms and condition will be made so that farmers may bear the cost of storage. Provisions for receiving bank credit against the receipt of produce stored at warehouses by the farmers will be encouraged. The provision for minimum support price for agricultural produce will be continued.

In order to popularize the quality under Agmark, the quality control laboratories in the state will be strengthened. Agricultural commodity wise portals will be developed to facilitate market wise, commodity wise and region wise marketing intelligence system. Mobile based market intelligence system will be developed to disseminate the price and market information to the farmers on the real time basis.

For post-harvest management, farmers and employees will be trained on collection, grading, standardization, storage and transport of agricultural produce and extension and publicity of information related to marketing will be encouraged.

## 8. Incentives to Improve Economic Condition of Farmers

Agriculture sector contributes only 7 percent in total export of UP, despite the fact that vast potential for export of fresh and processed products such as Basmati and non-basmati rice, Mango, Guava, Litchi, Aonla, citrus fruits, potato, ginger, garlic, table pea, Bhindi, Mashroom, Oilseeds, Mentha, flowers, medicinal and aromatic plants spices (chilli, turmeric, coriander), meat and milk products are available in the state. Products as per the geographical indicators will be promoted and facilities for quality contraol, branding, packaging and promotion will be developed. In order to increase agricultural exports, quality of produce and packaging will be improved as per the international standards/norms and facilities for patenting of technologies will be ensured.

Agriculture based industries, food processing industries; horticulture and floriculture will be designated as thrust areas for increasing the agricultural exports and for this quality control labs, handling, grading and packaging units and cold chain (pre cooling unit, cold storage and refrigerated vehicle) facilities will be developed. Units of value addition and processing of export oriented agriculture products will be exempted from mandi tax or lowering their rates in order to

### Incentive to Agriculture

#### Action Points

- Encouraging private firms for setting up cold storages and processing facilities on a large scale in every district by providing subsidies on the capital investment excluding the cost of land.
- Making electricity tariff at special rate for cold storages (Agro industrial consumers) instead of Industrial / Commercial rates.
- Promoting/encouraging utilization of renewable energy (mainly solar and wind) and plantation such as Jatropha on waste land, using appropriate, cost effective and efficient technologies.
- Identification and grading facilities of products as per geographical indications.
- Facilitating patenting of products and technologies.
- Establishing quality control Lab, handling, grading, and packing units and cool chains to increase agri export.
- Exempting mandi tax for processing units.
- Promoting bio farming.

encourage the setting up of processing and value addition units and to generate the local employment opportunities. Electricity tariff for Cold storages will be at special rates (Agro industrial consumers) instead of Industrial/ Commercial rates. Appropriate machinery and technologies will be developed for establishment of processing units at local level, which will help in maintaining the quality of product and ensure fair price in the market. Cargo handling and landing facilities will be strengthened at the state airports.

Organic farming will be promoted by identifying the suitable crops and regions for organic agriculture and quality of organic products will be upgraded as per the international standards. More concrete steps will be taken to realize the potential of organic as well as health food products in domestic and international markets. A separate Board for Promotion of Organic farming will be established to help the farmers at all stages of organic farming.

## 9. Risk Management in Agriculture

The adverse effect of natural calamities on agriculture will be managed. The information technology will be utilized to provide prior information to farmers about drought, flood, cold, high temperature and disease and pest infestation. In order to face the situation which may arise due to change in weather conditions, district wise contingency strategies/ plans will be developed for each agro-ecological region. Integrated risk management plan will be prepared to devise the strategies to manage various sources of risk. The implementation of these contingency plans effectively, availability of inputs at the block level will be ensured. Location specific weather-based agro-advisories in partnership with IMD, SAUs, UPCAR and other public and private sectors will be provided to farmers using print and electronic media, internet/ web-site and dedicated TV channels. Disaster preparedness programmes and contingent planning will be made for the disaster prone areas with emphasis on the vulnerability index of the farming community.

### Risk Management

#### Action Points

- Expanding weather based crop insurance scheme in all districts to provide safeguard against natural calamities.
- Establishing Seed Banks in drought prone areas eg. Bundelkhand and flood affected areas in eastern part of state to ensure seed availability in adverse climatic situations.
- Implementing contingency plan on the basis of forecasting of weather and crop and disease related information.
- Extension of agriculture insurance scheme.
- Developing insurance module and its linkages with commodity exchange in context of risk management in agriculture diversification.
- Providing facilities for purchase & storage of agriculture produce at Gram Panchayat Level.
- Developing GIS based information system

In addition to drought and flood, information regarding pest infestation and their management will also be provided in advance on regular basis. Assessment of fodder demand, especially for drought years will be assessed and Scientific methods of fodder preservation and storage will be promoted. To ensure fodder availability in rural areas, fodder banks will be established.

In order to protect the farmers from natural and other calamities, the benefits of agriculture crop insurance scheme availed by farmers who take credits from banks will be broaden so that increased number of farmers get the benefit of the scheme. Yield and weather based crop insurance scheme would be expanded in all districts to provide safeguard against natural calamities. In addition to this, government support available through contingency schemes at regional level will also be ensured. The central government schemes on crop and livestock insurance will be implemented to provide market based risk management tools to the farming community.

Seed Banks are proposed to be established in drought prone areas eg. Bundelkhand and flood affected areas in eastern part of state to ensure seed availability in adverse climatic situations. Seed banks for drought tolerant and short duration crops will be established as a measure of contingency planning. Cost of establishing Seed banks and regular budgetary support will be provided.

#### **10. Women Empowerment through participation in agriculture**

In Uttar Pradesh, women constitutes more than 50 per cent of total farmers, but their participation in departmental and extension activities are very low whereas 60-70 per cent agricultural activities are being performed by women. Few women are recognized as progressive farmers.

The contribution of women in agriculture will be made more effective by providing them training, research, economical support and marketing facilities. Keeping in view the importance of women in nutritional security at the family and community level, the agriculture and related programmes will be revised so that women receives the maximum benefit of technologies, extension services, marketing and credit facilities. In addition, rural women groups will be provided with the latest agriculture technical knowledge through informal education. The agriculture training institutes/ organization and their curriculum will be made gender sensitive. In order to ensure the participation of women in training and extension activities, their employment at extension, technical and administrative level will be promoted. In view of the important role played by women in agriculture, research to develop appropriate agriculture technologies and machineries as per the requirement of women will be encouraged.

<b>Women Empowerment</b>
<p><b>Action Points</b></p> <ul style="list-style-type: none"> <li>• Promoting women participation in training and agriculture extension activities.</li> <li>• Making the training institution and curricula gender sensitive.</li> <li>• Promoting research and extension to develop agriculture technology and equipments as per the requirement of women.</li> <li>• Establishing Women Self Help Groups.</li> <li>• Marketing of products produced by women through cooperative societies.</li> <li>• Providing facilities for training, consultancy services and credits to women through various credit institutions by simplifying the procedures.</li> <li>• Promoting disbursement of credit to women.</li> </ul>

Women Self Help Groups will be promoted to take up cooperative farming and the various activities connected with agriculture production, processing and marketing.

Women will be trained to take up small scale cottage industry in the field of animal husbandry and milk, fisheries, poultry, goatary, apiculture, sericulture mushroom production, floriculture and food processing.

### 11. Development of rural infrastructural facilities

Rural infrastructure facilities such road, electricity, irrigation, food processing, marketing and credit are directly linked with the agriculture development.

In the development of rural infrastructure, increased involvement of Panchayati Raj institutions and cooperative input societies will be ensured. One of the major reasons for low growth rate in the agriculture sector is the low investment in rural infrastructure. Therefore, in order to enhance the agricultural growth investment in rural infrastructure will be increased. In addition to government sectors, the private sectors will also be encouraged to invest in non-conventional sources of energy, processing and development of marketing infrastructure.

Small water harvesting structures such as low cost farm ponds, nulla bunds, check dams and percolation ponds will be developed. Strengthening of drainage system facilities will be given high priority.

#### Rural Infrastructure

##### Action Points

- Promoting investment in rural infrastructure
- Involving Panchayati Raj institutions and agro-cooperative input society for development of rural infrastructure.
- Increasing Investment for creation of irrigation facilities.
- Developing small water harvesting structures such as low cost farm ponds, nulla bunds, check dam and percolation ponds.
- Repairing, restoring and upgrading of existing common property assets and structures in watershed to obtain optimum and sustained benefits.
- Encouraging private sector to invest in energy sector, processing and marketing infrastructure.
- Construction of link roads with villages.
- Ensuring supply of electricity to agriculture and agriculture based industries.

Establishment of storage and processing units at production centres will be provided so that farmers get maximum prices of their products and more rural employment opportunities become available at rural level. In order to ensure the transport of agricultural produce to the market, facilities for transport and establishment of cool chains and cold storages will be encouraged.

### 12. Agriculture Education, Research and Human Resource Development

Besides agriculture universities, the state also has 35 agriculture colleges affiliated to non agricultural universities and two agriculture institutes under Banaras Hindu University (BHU) and Aligarh Muslim University (AMU).

The agriculture universities in the state have played a very crucial role in developing human resources and achieving self-sufficiency in foodgrain production during the Green Revolution. Pioneering work by agriculture scientists in the state agriculture

universities has been the main reason for attaining food security and high agricultural production and productivity in subsequent years.

There is a need for manpower with more practical orientation to cater to the needs of public, private and corporate sectors in agriculture with entrepreneurial skill who would be job providers instead of job seekers. In order to increase the production and productivity of agriculture, there is a need for demand driven and resource based research programmes with focus on small and marginal farmers located in different agro-climatic zones of the state and emerging market opportunities.

In order to strengthen agricultural education and research, the state will focus on following areas:

### 12.1. Education

The agricultural education system would be redefined so as to equip the new graduates with subject competency, self motivation, positive attitude, agri-business skills, and knowledge of computer and information technology and communication skills.

The agricultural education would lay increased emphasis on future subjects like agri-business management, agro-processing, dairy technology and veterinary services, marketing and storage, environment, biotechnology, information and communication technology, ethics of IPR and GMO, Codex standards, legal and good practices of trade, etc.

The existing infrastructure in the state agriculture universities would be strengthened with modern teaching tools to facilitate and improve quality of teaching. Academic excellence in critical and emerging areas would be promoted through project based funding to young and bright teachers.

Educational institutions world over are known because of the competence of their faculty members. Recruiting quality faculty is the first step but it is the continuing

#### Agriculture Education

##### Action Points

- Modifying agricultural education system to equip the new graduates with subject competency along with self motivation and positive attitude through improving their communication skills in both English and regional languages.
- Giving increased emphasis on future subjects like agri-business management, agro-processing, dairy technology and veterinary services, marketing and storage, environment, biotechnology, information and communication technology, ethics of IPR and GMO, Codex standards, legal and good practices of trade, etc.
- Initiation of diploma/certificate courses on vocational courses to provide adequate skills for gainful self-employment.
- Strengthening of infrastructure in the state agriculture universities for improving quality of teaching.
- Promoting subject based funding to young and bright teachers for encouraging academic excellence.
- Promoting concept of “one degree from one university” to improve quality of education by discouraging inbreeding.
- Arranging regular training of faculty for improving competency and enhancement of knowledge.
- Strengthening and developing partnership with educational institutions and research organizations within India and abroad for development of curriculum and training of faculty and students as well as joint research.
- Promoting private sector in curriculum design, faculty and student's development, research and institution's governance.
- Regular assessment of human resource needs in context of establishment of new universities/colleges.
- Compliance of ICAR's quality assurance policies, criteria and procedures, and strengthening the accreditation and quality monitoring capacity.
- Linking of private agriculture colleges with state agriculture universities to improve their quality and standards.

quality updating in knowledge and skill of faculty which holds the key for quality education. Therefore, faculty members in state agriculture universities would be encouraged to participate in training programmes for improving their competencies. This career development plan envisages that every faculty member should have opportunity of participation in one training programme every five years which means that 20 per cent of faculty under goes training every year.

Networking and partnership with educational institutions and research organizations within India and abroad would be strengthened for development of curriculum and training of faculty and students as well as joint research.

Public-private partnership in agricultural education through an increased role of the private sector in curriculum design, faculty and students development, research and development, institution's governance, and for providing a window for direct project support for other specific initiatives would be promoted.

The private colleges that provide agriculture education would be linked with state agriculture universities for the purpose of mentoring to improve their quality and standards.

## 12.2. Research

In order to strengthen the location specific research facilities, regional research stations would be strengthened. The infrastructural facilities especially in the field of biotechnology, molecular biology, food processing, information technology, precision farming, Nano- technology, etc. would be strengthened to carry out research in SAUs. In order to induct competent scientist, selection procedure in SAUs would be drastically changed so that staff of high quality is appointed, avoiding in-breeding of staff to the extent possible especially for the frontier areas of research such as biotechnology and genetic engineering. In order to rationalize the funding of research, grants would be channelized through U.P. Council of Agricultural Research (UPCAR) for area specific research.

### Agriculture Research

#### Action Points

- Strengthening of location specific research facilities at regional research stations.
- Creating infrastructural facilities specially in the field of biotechnology, molecular biology, food processing, information technology, precision farming, nano technology, etc. in SAUs.
- Ensuring appointment of competent scientists especially in the frontier areas of research such as biotechnology and genetic engineering.
- Channelising the funding of area specific research as per the expertise and area specific needs of the SAUs.
- Promoting private sector in advanced research e.g. GM Crops, Nano technology.
- Strengthening U.P. Council of Agricultural Research.
- Initiating research on - enhancing and Bridging the Yield Gaps, Diversification through Farming System, Natural Resource Management, Farm Mechanization, Post Harvest Management, Value Addition and Cost Effectiveness, Climatic change, Agri-business, WTO and other emerging issues.
- Establish centre of excellences..

Keeping in view the increased interest shown by the private sector in the areas of seeds, horticulture, cash crops, fertilizers and pesticides being used in agriculture, private

sector participation in agricultural research would be promoted. If private sector bears some responsibility of research, government resources would be diverted for facilitating researches in the areas of public interest such as soil, water, GM crops and Nanotechnology.

The U.P. Council of Agricultural Research would be strengthened to effectively coordinate agricultural education and research and will continue to be responsible for funding research in emerging priority areas of research in the state.

### 12.3. Human Resource Development

Upgradation of technical knowledge and skill is an important component for implementing any programme effectively in a scheduled time frame. In order to upgrade the knowledge of extension functionaries of various departments, arrangements for regular training will be ensured in the Directorate of Extension of SAUs and various KVKs established in different districts. Human resource management along with finance and input is very important; hence trainings and demonstrations will be organized for capacity building of the concerned field functionaries.

## 13. Institutional Reform and Planning System

### 13.1 Institutional Reforms and Management

Institutional reforms and management in agriculture sector is necessary for increasing the agricultural growth, providing remunerative prices to the farmers for their produce, and for liberalization of agricultural production, processing and marketing facilities in the context of globalization. Keeping in view the large number of small and marginal farmers such changes will be necessary which will increase the productivity of the small holdings for increased profits. Necessary provisions will be made so that farmers who are engaged in crop sharing receive the same benefits as that of the land owner.

#### Institutional Reforms & Management

##### Action Points

- Providing facilities to farmers doing share cropping similar to land owner.
- Making constitutional arrangements for leasing.
- Computerizing revenue records and provision of passbooks.
- Changing institutional structure for promotion of micro credit
- Framing regulations for agreement/contract farming
- Increasing the use of information technology (GIS, remote sensing).
- Implementing e-governance as per National E-governance Policy in different departments.

Amendments in regulations will be made for leasing of land to small farmers and private sector so that large/ distant farmers can easily lease out their lands to small farmers/ women farmers and to the private sectors. Land reforms process will be made effective and given momentum. Land records will be computerized and passbooks will be provided to farmers. The rights of women in land ownership will be recognized. The participation of the private sector will be promoted by agreement/ contract farming and leasing of lands to private sector so that farmers get the benefit of recent technology, investment and facilities for marketing of their produce.

Institutional changes will be made for providing credit to farmers in rural areas. Cooperative institutions and farmer groups will be linked to nationalized banks so that farmers can get the credit facilities easily, and in order to extend the reach of banks. Micro credit schemes will be promoted.

In order to improve the efficiency of agriculture and related departments, use of information technology will be given priority and the programmes of e-governance from government to citizen as per national e-governance policy will be implemented. Emphasis shall be given more on technical aspects rather than administrative ones. The agriculture database will be strengthened qualitatively.

### 13.2 Planning on Regional Basis

There is a wide variation in infrastructure facilities, natural resources, farming systems and crop production in various agro-climatic and economic regions of the state. Existing 9 agro-climatic zones have been refined and state has been delineated into 20 agro-ecological regions by combining 3 physiographic regions, 8 broad soil groups, 3 bio-climatic types and length of growing period (LGP) for precise planning. Therefore, special emphasis will be given on regional planning to take advantage of diverse agro-ecological conditions for maximum production under various agro-ecological situations. Appropriate and beneficial farming systems for different agro-ecological regions will be developed and popularized.

#### Regional Planning

##### Action Points

- Development of plans on the basis of regional peculiarities.
- Developing appropriate and beneficial farming systems for different agro-climatic zones.
- Recommending area specific suitable crops.
- Developing specific packages for specific regions such as Bundelkhand Vindhan etc.
- Production and distribution of bio-agents at block level.
- Compiling ITK and its execution after validation.

### 14. Monitoring and Review

The present document outlining the Uttar Pradesh Agricultural Policy will be the foundation stone for the accelerated growth of agriculture sector every year for the next 10 years. The success of the policy will depend upon motivation and dedication related to its implementation. A committee constituted under the Chairmanship of Hon'ble Chief Minister will monitor its implementation from time to time. A working group constituted under the Chairmanship of Agriculture Production Commissioner will undertake a detailed review of the major highlights of the policy, including the availability of financial resources and efforts made to remove bottlenecks and will also make additional suggestions as and when necessary. The committee will assess the progress made against each action point as shown in Annexed time bound monitorable action plan using the set performance indicators. All concerned departments will prepare detailed time bound monitorable action plans in accordance with the proposed Agriculture policy for effective implementation of the various activities.

## Monitor able Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitor able Indicators
		I	II	III	IV	V		
<b>Food and Nutritional Security</b>	Refinement and adoption of existing location specific farming modules for different sizes of holdings						<ul style="list-style-type: none"> <li>• Optimization of farm resources.</li> <li>• Increased role of private sector in state agriculture development.</li> <li>• Sustainable growth in agricultural production and productivity for assured food and nutritional security.</li> <li>• Introduction of new agro-based enterprises.</li> <li>• Improved net economic return and family income.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of new agro-industries and marketing centres in rural areas.</li> <li>• Increased agricultural production and productivity on sustainable basis.</li> <li>• Increased per capita income.</li> </ul>
	Reduction in cost of cultivation							
	Increasing cropping intensity through enhanced area under summer crops and introducing short duration catch crops.							
	Encouraging private sector participation in input arrangements and their distribution							
	Development and adoption of new scientific techniques such as resource conservation, bio-technology, precision farming.							
	Providing additional market support to farmers to maintain food security and increase incomes of farmers.							
	Providing facilities for value addition and promoting agriculture based industries in the rural areas							
	Promotion of millets especially; minors to ensure nutritional security.							



## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
Water Resource Management	Legislation to prohibit ground water exploitation, particularly; in over exploited and critical areas						<ul style="list-style-type: none"> <li>• Reduction in waterlogged area in canal commands.</li> <li>• Improved Ground water level in deep watertable areas.</li> <li>• Conservation and maintenance of water resources.</li> <li>• Improved water use efficiency.</li> <li>• Increased agricultural production and productivity from per unit of water.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in net and gross irrigated area.</li> <li>• Increased cropping intensity.</li> <li>• Increased water productivity.</li> <li>• Improvement in water logged areas.</li> </ul>
	Adoption of improved On-Farm Water Management practices							
	Promotion of Solar Water Pumps in shallow water table areas, especially in eastern parts of Uttar Pradesh							
	Encourage conjunctive use of surface and ground water sources to deal with the problems of waterlogging and inadequate recharge.							
	Constitution of a Commission to review the expansion of area under water guzzling crops in unsuitable areas							
	Support to rain water harvesting on motto "Khet Ka Pani Khet Maun; Gaon Ka Pani Gaon Maun" and recycle harvested water for irrigation purposes.							
	Lining of canals to reduce the water seepage and control waterlogging							
	Promotion of bio-drainage and construction of interceptor drains along the canals in seepage zones.							
	Promotion of drought and flood tolerant varieties in more vulnerable areas							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators	
		I	II	III	IV	V			
<b>Input Management</b>	Regular assessment of seasonal inputs required at district level and ensuring their availability on time.						<ul style="list-style-type: none"> <li>• Need based estimation of various inputs.</li> <li>• Timely arrangement and distribution of quality inputs at local level.</li> <li>• Single window input supply system.</li> <li>• Reasonable prices of inputs namely; seed, bio-fertilizers, bio-pesticides and composts due to production of these inputs at local level.</li> <li>• Saving on input cost due to precise estimation and their application.</li> <li>• Reduction in pollution hazards by minimizing use of agro-chemicals and their replacement with bio-pesticides/ bio-agents, bio-fertilizers and organic composts.</li> <li>• Minimized crop losses caused due to disease and pest infestation by timely forecasting about their occurrence and management strategies.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased factor productivity.</li> <li>• Change in plant nutrients requirement.</li> <li>• Increased demand of new varieties seed.</li> <li>• Increase in production of inputs i.e. seed, bio-fertilizers, bio-pesticides, composts at local level.</li> <li>• Improvement in SRR and VRR.</li> <li>• Strengthening of input supply system.</li> <li>• Increased use of KCC.</li> </ul>	
	Production of seeds, bio-fertilizers, bio-control and bio-chemicals at local level.								
	Create single window system for timely availability of quality inputs.								
	Impart Training & Demonstration on input use.								
	Motivate farmers for increased use of kisan credit card (KCC).								
	<b>I Seed</b>	Increase Seed Replacement Rate (SRR) and Variety Replacement rate (VRR)							
		Promote private institutions, farmer groups for producing certified seeds.							
		Establishing seed processing units.							
	<b>II Fertilizers</b>	Establishment of Seed Banks in flood affected and drought prone areas.							
		Assess and ensure availability of fertilizers on the basis of soil testing and crop coverage.							
Promote use of micronutrients.									
Increase the use of bio-fertilizer and bio-compost.									
Strengthening of labs to produce bio-fertilizers.									
<b>III Plant Protection</b>	Formulate Organic Farmers Association to facilitate certification of the products.								
	Regular pest surveillance to provide prior information regarding occurrence of pest and their management.								
	Campaigns and trainings for enhanced use of bio-pesticides and restricted use of chemical pesticides to protect environment.								
	Strengthen Labs for production of quality bio-agents and bio-pesticides.								
<b>IV Farm Machinery</b>	Promote IPM								
	Promotion of multipurpose implements								
	Encouraging private sector for production, distribution and repair of implements								
	Encouraging custom hire services								



## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Horticulture</b>	Promoting area specific suitable fruits, vegetable, spices, aromatic and medicinal plants and flowers						<ul style="list-style-type: none"> <li>• Conservation and utilization of endangered germplasm/ species for future development.</li> <li>• Controlled use of agro-chemicals.</li> <li>• Increased production and yield of horticultural crops and net return.</li> <li>• Diversification of agriculture i.e. rice-wheat system.</li> <li>• Employment generation.</li> <li>• Increased family income.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in area under horticultural crops.</li> <li>• Increase in production and productivity.</li> <li>• Introduction of private entrepreneurs.</li> <li>• Employment generated.</li> <li>• Increase in per capita and family income.</li> </ul>
	Promotion of IPM and IPNM techniques.							
	Production of quality planting material							
	Encouraging private entrepreneurs to enter into marketing contracts with farmers/ producers..							
	Setting up of floriculture and post harvest management centres							
	Promoting low cost storage structures/ technologies for prolonging the shelf life of produces							
	Rejuvenating old and unproductive orchards.							
	Conservation and improving endangered varieties.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Post Harvest Management and Food Processing</b>	Creating village level storage infrastructure/ Silos						<ul style="list-style-type: none"> <li>Develop grading, processing, storage facilities at local level.</li> <li>Enhanced self-life of produce especially perishables.</li> <li>Higher net return because of reduced overhead cost on transportation.</li> <li>Enable producers to fetch higher returns from their produce by selling them at appropriate time.</li> <li>Enhanced market prices due to increased competition between buyers.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Information and Training Chaupals established.</li> <li>ATICs established and strengthened.</li> <li>Status of mobile dissemination services.</li> <li>SREPs developed and updated.</li> <li>Status of websites updating.</li> <li>Participation of women beneficiaries.</li> </ul>
	Subsidy to farmers to purchase crates and other equipments.							
	Creating major storage facilities at important market centres by Mandi							
	Training to farmers and farmers groups about value addition, handling and packaging of agricultural products especially perishables eg; vegetables, fruits and flowers.							
	Promoting private sectors in food processing							
	Establishing quality testing laboratories.							
	Creating linkages among farmers, processors, exporters and Government institutions.							
	Developing appropriate machineries and technologies for processing at local level.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Silk production for self employment</b>	New Mulberry Plantation in private sector						<ul style="list-style-type: none"> <li>• Increase production &amp; productivity of cocoon.</li> <li>• Control of environmental pollution.</li> <li>• To generate employment.</li> <li>• Increase in family income.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase production per 100 DFLs</li> <li>• Increase in area under plantation.</li> <li>• Increase in production and productivity of cocoons.</li> </ul>
	New Arjun plantation							
	<b>No. of DFLs reared</b>							
	Mulberry							
	Tasar							
	Eri							
	<b>Cocoon production</b>							
	Mulberry							
	Tasar							
	Eri							
	<b>Village covered</b>							
	Mulberry							
	Tasar							
	Eri							
	<b>Farmers adopted sericulture</b>							
	Mulberry							
	Tasar							
	Eri							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Animal Husbandry and Dairying</b>	Formulation of "Pashu Vikas Niti"						<ul style="list-style-type: none"> <li>• Policy for sustainable development of AH and Dairy sector in the state.</li> <li>• Genetic improvement of indigenous cattle and buffalo breeds.</li> <li>• Minimize fodder and feed shortage problem.</li> <li>• Reduction and management of infertility.</li> <li>• Enhanced milk and milk products.</li> <li>• Improved health care and servicing facilities at local level.</li> <li>• Better knowhow about livestock management.</li> <li>• Enhanced family income.</li> </ul>	<ul style="list-style-type: none"> <li>• Expansion of animal health care centres.</li> <li>• Increase in fodder and feed production.</li> <li>• Increase in production and productivity of milk.</li> <li>• Milk products developed.</li> <li>• Milk collection centres and societies created and processing units established under public, private and PPP mode.</li> <li>• Establishment of poultry, goatry and pigry units.</li> <li>• Diploma and Vocational programmes launched.</li> <li>• Change in family income.</li> </ul>
	Promotion of area specific indigenous breed improvement programmes through creating semen production and genetic improvement facilities.							
	Strengthening animal health care and sterility eradication programmes.							
	Implementation of fodder and feed development programmes.							
	Strengthening cooperative societies for milk production enhancement.							
	Promoting marketing of milk and milk products through cooperative societies under public, private and PPP mode.							
	Strengthening infrastructural facilities for ensuring availability of quality milk and milk products.							
	Promoting backyard poultry, Goatry and Pigry in rural areas.							
	Expansion and strengthening concept of paravet at village level.							
	Starting diploma and vocational certificate courses.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Fisheries "Blue Revolution"</b>	Ensure sufficient production of fingerlings to make the state self reliant.						<ul style="list-style-type: none"> <li>• Increased fish production.</li> <li>• Become self reliant in fish seed/ fingerlings.</li> <li>• Production of shrimp and ornamental fishes.</li> <li>• Strengthened marketing facilities.</li> <li>• Better knowhow about aquaculture.</li> <li>• Enhanced family income.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of hatcheries especially in private sector.</li> <li>• Development of integrated fish units.</li> <li>• Establishment of cold chains.</li> <li>• Number of fish mandis established.</li> <li>• Change in family income.</li> </ul>
	Doubling the fish production.							
	Promote specialized fish production e.g. shrimp and ornamental fish production.							
	Encourage establishment of hatchery and nursery in the private sector.							
	Integrated development of ponds, lakes, rivers, flood prone/ waterlogged and alkaline/ saline areas for fish production.							
	Establishment of cold chain for fish marketing.							
	Encourage establishment of improved fish feed industry in the private sector.							
	Establishment of fish mandis.							
	Establishment of rural based low cost post harvest processing and value addition units.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Sugarcane Development</b>	Introduction of new high yielding varieties containing high sugar content.						<ul style="list-style-type: none"> <li>• Enhanced sugarcane production and productivity.</li> <li>• Improved sugar recovery.</li> <li>• Development of varieties for biotic and abiotic stress conditions.</li> <li>• Increased timely return/payment.</li> <li>• Additional production of pulses and other inter-cultivated crops.</li> <li>• Improved soil health due to intercropping with pulses.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in sugarcane production and productivity.</li> <li>• Release and promotion of new high yielding varieties.</li> <li>• Modernization and establishment of new mills.</li> <li>• Expansion of area under intercropping.</li> <li>• Timeliness in payment.</li> <li>• Increase in economic return.</li> </ul>
	Encouraging inter-cropping of sugarcane with crops like potato, lentil, Rape Seed Mustard in autumn and moong, urd in spring planted sugarcane etc. for higher economic returns and better soil health.							
	Promotion of organic fertilizers, bio-fertilizers, bio-compost and vermi-compost.							
	Development of varieties for water logged and saline, sodic conditions and standardization of production techniques.							
	Integrated sugarcane development, control of insect-pest and ensuring availability of inputs.							
	Timely payment of profitable cane prices.							
	Modernizing the existing mills and establishing new sugar mills.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Farmers Friendly Marketing Setup</b>	Construction of Mandi at Tehsil level						<ul style="list-style-type: none"> <li>• Remunerative market prices.</li> <li>• Improved marketing facilities at local level.</li> <li>• Minimized post harvest and processing losses.</li> <li>• Liberal marketing procedure.</li> <li>• Increased involvement of producers and entrepreneurs.</li> <li>• Reduced role of inter mediators.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of new market and input distribution centres.</li> <li>• Formation of farmer's consortium.</li> <li>• Level of private sector involvement.</li> </ul>
	Establishing Hath-Paith and animal markets							
	Formation of Small Farmers Agri-Business Consortium (SFAC)							
	Introducing E-Trading and unified licensing system.							
	Development of market oriented extension system for new commodities, grades and standards, food safety etc.							
	Establishing facilities for grading, standardization, packaging and certification in the market area.							
	Establishing input centers in Mandis.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Environment Management</b>	Research on development of new genotypes, land use systems including conservation agriculture						<ul style="list-style-type: none"> <li>• Conservation and utilization of endangered germplasm/ species for future development.</li> <li>• Controlled use of agro-chemicals.</li> <li>• Better knowhow among masses about changing climate.</li> <li>• Formulation of development plans for changing situations.</li> <li>• Improved environmental conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Decline in use of pesticides and other agro-chemicals.</li> <li>• Formulation and implementation of various mitigation and adaptation programmes in changing situations.</li> <li>• Improved or sustained status of natural resources.</li> </ul>
	Conserving traditional endangered plant germplasm and their utilization for development of high yielding varieties for changing climatic conditions.							
	Developing and implementing public awareness programmes on effect of climate change on agriculture.							
	Collection and sharing of information among stakeholders on climate change and its effects.							
	Integrated management of rainwater, surface, and ground water resources.							
	Training of officers to enable them to incorporate climate change concerns in all decisions for implementing developmental activities.							
	Identifying polluted ground water areas and research on development of cost effected technologies for their use.							
	Management of soil and water pollution through guarded uses of agro-chemicals.							



## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Agricultural Education</b>	Increased emphasis on future subjects like agri-business management, agro-processing, dairy technology and veterinary services, marketing and storage, environment, biotechnology, information and communication technology, ethics of IPR and GMO, Codex standards, legal and good practices of trade etc.						<ul style="list-style-type: none"> <li>• Imparting need based degree and vocational programmes.</li> <li>• Development of qualified human resource to cater future demand.</li> <li>• Improved linkages with national and international public and private institutions for collaborative research and education.</li> <li>• Creation of new agricultural universities and institutions only after assessment of human needs</li> <li>• Improved education standard.</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of new courses/ programmes.</li> <li>• Collaboration with number of international and private organisations.</li> <li>• Accreditation and Gradation Level.</li> </ul>
	Starting diploma/certificate courses on vocational programmes to provide adequate skills for gainful self-employment.							
	Strengthening of infrastructure in the state agriculture universities for improving quality of teaching.							
	Regular training of faculty for improving competency and enhancement of knowledge.							
	Strengthening and developing partnership with educational and research organizations within India and abroad for developing curriculum and training of faculty and students.							
	Promoting private sector in curriculum design, faculty and student's development, research and institution's governance.							
	Regular assessment of human resource needs in context of establishment of new universities/colleges.							
	Compliance of ICAR's accreditation policies to maintain quality standards.							
	Linking of non SAU agriculture colleges with state agriculture universities (SAUs) to improve their quality and standards.							

## Monitorable Implementation Schedule

Issues	Activities	Implementation Schedule					Expected Outcome	Monitorable Indicators
		I	II	III	IV	V		
<b>Agricultural Research</b>	Strengthening of location specific research facilities at regional research stations.						<ul style="list-style-type: none"> <li>• Development of area specific technologies to address location specific problems.</li> <li>• Development of less external input dependent cost effective resource conservation technologies.</li> <li>• Development of new and improved technologies for changing climatic conditions.</li> <li>• Increased collaboration with private sector for advanced research.</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening of infrastructure facilities and regional research stations.</li> <li>• Collaboration with private sector organisations.</li> <li>• Number of research programmes initiated.</li> <li>• Issue based technologies developed.</li> <li>• Varieties developed.</li> <li>• Biotechnological interventions made.</li> </ul>
	Creating infrastructural facilities for advanced research especially in the field of biotechnology, molecular biology, food processing, information technology, precision farming, nano technology, etc. in SAUs.							
	Channelizing the funding for area specific research as per the expertise and area specific needs of the SAUs.							
	Promoting private sector in agriculture research especially in frontier areas.							
	Strengthening U.P. Council of Agricultural Research for effective and efficient coordination.							
	Initiating research on - enhancing and Bridging the Yield Gaps							