Disaster Management Plan of Agriculture Department 2019-20

OUR VISION

FOR FOOD, FOR FARMING, FOR OUR FUTURE

Government of Assam

Department of Agriculture

Assam Secretariat, Dispur, Guwahati

Index

Chapter: 1

Profile of the Department

The Department of Agriculture, Assam has the authorization to plan, develop, utilize and manage State's resources efficiently and effectively for fostering a developing/ developed environment for the farm belonging to the farmer and the farm entrepreneur with the objective of enhance farm income and ensure food security to all. To achieve this objective, the Department formulates Agriculture Policies & Plans and undertakes implementation, monitoring of agricultural projects through the different directorates and its ancillary organizations.

The Department is headed by the Agricultural Production Commissioner & Addl. Chief Secretary. The functions of the Department are carried out through following organizations /wings, public sector undertakings.

- Directorate of Agriculture
- Directorate of Horticulture & FP
- Assam Seeds Corporation (ASC)
- Assam State Seeds Certification Agency (ASSCA)

The Geo-Physical Situation:

Assam, situated at the foothills of the eastern Himalayas, is the largest state in northeast India and lies in the middle reach of the river Brahmaputra and Barak. The State accounts for nearly 2.4% of India's total geographical area The Brahmaputra basin covers an area of 5,80,000 sq. km out of which 70,634 sq. km falls within Assam. The land has uneven topography, full of hills, plains and rivers. Except for a narrow corridor running through the foothills of the Himalayas that connects the state with West Bengal, Assam is almost entirely isolated from India. This state is bordering Arunachal Pradesh in the east, West Bengal, Meghalaya, Bangladesh in the west, Arunachal Pradesh, Bhutan in the north and Nagaland, Manipur, Mizoram, Meghalaya, Tripura in the south. Its longitude lies at 88.250E to 96.00E and latitude at 24.50N to 28.00N and temperature varies from 60C to 380C. The humidity that is brought into Assam by the southwest monsoons, shower an average annual rainfall of 120 inches or more on the Brahmaputra valley and the surrounding region. The monsoons are Assam's life line; creating a bio-diversity that can compete with the equatorial rain-forests (State profile, Ministry of Health and Family Welfare, 2009). The topography and the warm and humid climate are conducive to plant and vegetation growth. Assam is home to 51 forest and sub-forest types, and the confluence of diverse patterns of vegetation (Assam Human Development Report, 2003). The Brahmaputra River flows through Assam from east to west over a length of approximately 650 kilometers. Its main branch originates in the Tibetan plateau, flowing from west to east as the Tsangpo River, and then turns south through the eastern Himalaya as the Dihang River to enter Assam, where it is joined by other

branches to form the Brahmaputra. The Barak River rises in the Indian state of Nagaland at an elevation of approximately 2,300 meters and passes through the Manipur Hills of Manipur state over a river length of nearly 400 kilometers. It then flows generally westward from Lakhipur through the Cachar Plains region of Assam over a river length of approximately 130 kilometers to enter Bangladesh near Bhanga (NHC, Background paper, 2006). Each flood season, the Brahmaputra and its tributaries forsake their earlier channels to cut new swathes through the soil. As the water recedes, alluvial deposits remain in the river, giving rise to sandy islands. Some of these islands are very large, and the annually enriched soil has attracted cultivation and semi-permanent settlement. There is a distinct monsoon season in which a large part of the annual rainfall is concentrated. There are also two months of cyclonic activity preceding the monsoon, and rainfall at other times of the year as well.

Demographic Profile:

According to the 2011 census, Assam‘s 26.64 million people account for 2.59% of the country‘s population with its population density being marginally higher than the average density of the country (Assam Human Development Report, 2003). In most of the decades during the 20 century, the population of the state was well above the national average, and this has been attributed to large scale migration. But, this trend seemed to have reversed in the last decade with a decline in the decadal variation as opposed to that of the country (Assam Human Development Report, 2003). Migration, still poses as a disturbing and alarming situation in the state with its continuation even in normal time (Economic Survey of India, 2009-10) There had been adverse sex ratio disparities in Assam at the beginning of the 20 century, while, during the recent decades this trend has been improving with 932 females for every 1000 males compared to 933 to 1000 in the country (Assam Human Development Report, 2003).

Research & training facilities

Agriculture and all other farm activities are based on some working principles, knowledge of which is necessary for an extension agent. A principle is a statement of policy to guide our decision and action in a consistent manner. To do so all our field functionaries and farmers need to be trained up in a regular basis. This is a part of extension education. The basic objective of departmental extension education is the expression of the ends towards which our efforts are directed. An objective means a direction of movement. Before starting any programme, its objectives must be clearly stated so that one knows about the final goal and what is to be achieved. This most important aspect of our department is achieved through different training programme. Training is required to achieve the following objectives.

- To disseminate the useful and practical information relating to agriculture, including improved seeds, fertilizers, implements, pesticides, improved cultural practices to the desired stake holders.

- To apply useful knowledge to farm and home.
- To change the behavior and attitude of rural people training is an effective tools.
- To get feedback from the target groups about the latest scientific technologies transferred to them through different media and to improve all aspects of the life of the rural people with the framework of the national economic and social policies, involving the population as a whole.

The training is carried out by SAMETI and ARIAS on Different themes.

Acts and Rules of the Department

Acts and rules of the department provide parent act work of the department. It provides details guidelines and definition of the department that must follow to enforcement of the act and rules. The department of Agriculture provides certain Acts and Rules. They are as follows:

Agriculture & Horticulture

- Fertilizer control over 1985 amended 2013
- Fertilizer control order 1985 Bio Fertilizer & organic fertilizer
- Fertilizer control order 1985
- The insecticides act 1968
- Insecticides amendment Rule 2006
- Insecticides Rules 1971
- Agriculture Draft Policy Assam
- The Assam Agriculture Engineering Service Rules 1983
- The Assam State Agriculture Policy
- The Assam Agriculture Service Rule 1980
- Agriculture Policy

Seed Cooperation:

- Seed Act
- Seed Act 1966
- Seed order 1983

Assam State Marketing Board:

- The Assam Agriculture Produce Market Act 1972(as amended up to 2006)
- The Assam Agriculture Produce Market(General Rules 1975) as amended 2003
- Bye Law of the Assam State Agricultural Marketing Board

Note:
The department website provide the details of the Act & Rules

- **https://diragri.assam.gov.in/documents/acts-and-rules-0**
- **https://diragri.assam.gov.in/documents-detail/seed-act**
- **https://agri-horti.assam.gov.in/documents/acts-and-rules-1**
- **https://agri-horti.assam.gov.in/documents-detail/agriculture-policy**
- **https://asamb.assam.gov.in/portlets/acts-and-rules**

Chapter 2

A profile of agriculture in the state and its vulnerability to Natural Disasters

Assam is a flood prone State with frequent and long inundation of basins and sub-basins of the Brahmaputra, Barak and other smaller rivers. The extremely dynamic monsoon regime vis-à-vis the unique physiographic setting of the basin has been considered as the single most important cause for frequent occurrence of flood in this region.

Under normal condition, upland paddy areas are free from flood while medium & low lands are comparatively very often subjected to inundation ranging from partial to complete submergence of crop. It is experienced that due to long period of submergence by flood water, lowlands areas suffer from total crop damage.

Assam falls in the highest rainfall intensity zone of the country. The precipitation here is mainly due to the South-West monsoon (June to September). Average annual rainfall in the region is very high and ranges from 1750 mm in the plains to about 6400 mm in the hills. The huge volume of water rushes through the narrow bowl shaped valley of Assam to the Bay of Bengal ravaging the area with floods and land erosion.

The annual average rainfall of Assam is 2297.4 mm. The State normally receives 2% rainfall in winter season (January-February), 25% in summer season (March-May), 65% in Monsoon season (June-September) and 7% in Post-monsoon (October- December). Generally, in Assam incidence of flood occurs during July- August due to high concentration of rainfall during monsoon season. Occasionally, flood also occurs during September- October in the State affecting the standing winter crops.

Rice is the staple food of the people of the state and Sali rice is the part of their culture. Sali is the main crop of the majority of the farmers constituting about 80% of total population of the State. Out of the total rice areas (25.13 lakh ha), the Sali rice alone occupies 19.25 lakh ha (76.46 % of total rice area) targeted to be cultivated during Kharif season, 2016-17.

In Assam every year, out of the total Sali rice cultivated during kharif season, an area of 3 to 4 lakh hectares gets affected by flood during **June-September**. Each year 3-4 nos. of floodwaves destroys the cultivated crops in riverbanks apart from eroding fertile cultivated land and brings extreme miseries especially to small and marginal farmers. There are 4.93, 261hectare chronically flood prone areas in different districts of Assam are often affected due to flood, and as a result very low rice production and productivity is recorded despite of high potentiality.

Crop Production

The Agriculture Department has given more focus of attention to increase production of food grain to provide food security along with nutrition to the growing population through increasing productivity of crops and cropping intensity. Rice as staple food which shares 93.06% of total food grain area is the main trust crop in the State. Due to impact and efforts, the production of major food and cash crops are on increasing trend. The State exceeded all time new record of 51.89 lakh MT food grain productions during the year 2011-12. against 51.76 lakh in 2010-11.The production and productivity of rice

which was 29.16 lakh MT with productivity of 1349 kg/ha in 2006-07 increased to 50.45 lakh MT along with productivity of 1986 kg/ha. During 2011-12. The state achieved 11.1% annual growth of production in Rice which was made possible due to adoption of High Tech. Agriculture, expansion of area under HYV/Hybrid rice along with infrastructure development of farm mechanization, irrigation etc. Due to satisfactory departmental efforts and impact of NSFM (Rice)-BGREI, the production and productivity of Pulse and Oilseeds though under increasing trend during first 2 years 11th five years plan but become static and erratic due to low adoption of new technology associated with low irrigation and acidic soil.

History of Natural Calamities in Assam:

Floods & Drought

The basin of the Brahmaputra River is among the most floods prone in the world (River Flooding and Erosion in Northeast India, 2006). The extremely dynamic monsoon regime along with the unique physiographic setting of the basin has been considered as the single most cause for frequent occurrences of floods in this region (Assam Staff College Report, 2005). The basin experiences highest number of floods in India during the monsoon rains and suffers flood damages on an annual basis (Kienberger & Johnson). Historical records reveal that the valley faced flood hazards since primeval times (Assam Staff College Report, 2005). The table below shows the flood damage trends in the Brahmaputra valley of Assam the period of the year 1953 to 2005 respectively.

The Brahmaputra Valley in Assam is one of the most hazard-prone regions of the country, with more than 40% of its land (3.2 million hectares) susceptible to flood damage. This is 9.4% of the country's total flood-prone area. ***About 7% of land in the state's 17 riverine districts has been lost because of river erosion over the past 50 years***. Flood hazard risk in the state is due to a blend of numerous natural and anthropogenic factors. The important cause for frequent occurrence of flood in this region is the extremely dynamic monsoon rainfall regime and the unique physiographic setting. The Brahmaputra valley had experienced major floods in 1954, 1962, 1966, 1972, 1974, 1978, 1983, 1986, 1988, 1996, 1998, 2000, 2004, 2007, 2011 and 2013. According to Flood Hazard Atlas of Assam (ISRO, 2011), approximately 28.31% (22.21 lakh hectares) of land in state of Assam was affected by flood hazard between the period 1998 to 2007.

The flood can be classified as Early Season Flood, Mid-Season Flood and Late-Season Flood depending upon its time of occurrence in June-July, August- September and October - November, respectively.

Crop Area & Farm Families Affected by Flood / Drought in Assam

Item	2009-10 (Flood)	2010-11 (Flood)	2011-12 (Flood)	2012-13 (Flood)	2013-14 (Flood)	2014-15 (Flood)	2015-16 (Flood)	2016-17 (Flood)	2017-18 (Flood)	2018-19 (Flood)	2019-20
Crop area affected (lakh hectare)	8.69	1.87	1.61	5.3	0.9	4.17	3.41	2.46	14.5	12.7	21.4540
Farm Family affected (lakh no.)	15.95	4.95	3.42	12.38	0.36	11.63	5.64	5.5	6.3	6.6	80.1579

**Data Source: Directorate of Agriculture

Early season flood

June is the beginning of Winter Paddy in Assam, which occupies more than 90% of the Net Sown Area of that time. Farmers quickly sow the lowland and some medium land paddy in the seed bed and prepare for the transplanting in the month of July and August. After onset of Monsoon, pulses, oilseeds, vegetables and other crops are sown. . Early season flood occurring during June-July causes the following damages –

1. Damage of paddy in nursery, standing crop of vegetables, pulses and oilseeds.
2. Early-transplanted and standing direct sown paddy is affected by flood.

Usually, in the post flood situation there is acute shortage of seed for re-sowing and replanting operation in early season flood. Partially damaged fields often have poor plant population and need to be made up through clonal propagation or gap filling. There are also possibilities of pest (swarming caterpillar) and disease incidence. Shortage of agri-inputs like seeds, fertilizers and pesticide aftermath the flood are likely on account of temporary spurt in demand and need to be looked into.

Mid-Season flood:

When flood comes in the middle of the season during August and September, it is called Mid-Season Flood. The extent of loss in most of the times is severe and irreparable as the crops are in active growth stage and the farmers have already spent enough money on management of crops further, the farmers will have to lose the season of cultivation and the land cannot be put to cultivation immediately. The Mid-Season Flood puts a lot of organic matter in the field due to decomposition of standing crop at maximum growth stage which increases fertility of the soil.

Nature of Damage

1. Incidence of pest and diseases to standing crop that escaped or resisted flood.
2. Damage of upland non paddy crops like vegetables, pulses and oilseeds at fruiting stage.
3. Damage of short duration paddy at maturity stage and medium and late duration paddy at different growth stage based on time of transplanting.

Mid-season flood usually affect most of the crops at mid-growth stage causing damage in different degree depending upon submergence. Upland paddy which is at maturity stage will be harvested from top due to standing water in field. Important pests like stem borer, gall midge, leaf roller and grasshopper are problematic in rice crop that resist and escape flood damage. Further, diseases like sheath rot, sheath blight, bacterial leaf blight and blast are common diseases found in paddy crops after flood. Appropriate plant protection measures will be taken to save the standing crop. Seed treatment and opening of drainage channel will be taken up for growing immediate crops (with available paddy seedling from the upland areas) in flood affected areas successfully. Other crops like vegetables, pulses and oilseeds stand no chance of revival under submergence conditions and need to be re cropped.

Late-season flood

It usually occurs in post Monsoon season in September -October- November. The flood causes severe damage to medium and long duration paddy at maturity and grain filling stage, respectively. The farmers often have to bear complete loss of money invested on cropping. The winter vegetables and non-paddy crops like oilseeds and pulses grown in uplands are also seriously affected at different growth stages.

Nature of damage

1. Lodging and Germination of grains in the field.
2. Incidence of disease and pest in crops that escaped or resisted water logging.
3. High value vegetables are also affected.
4. Grain discolorations and quality deterioration.
5. Siltation.
6. Breakage of drainage channel.

Late season flood causes germination of grains in standing crop of paddy. Varieties susceptible to lodging are completely damaged. Sometimes, farmers do not go for harvesting paddy. There is also addition of lot of organic matter due to decomposition of crop residues. Since, the majority of low and medium lands are under paddy cultivation in kharif, farmers bear a great loss in late season flood. Sometimes land preparation for Rabi crops is delayed due to high moisture content and none the less provide congenial conditions for harmful soil microbes to grow.

Flood adds a lot of organic matter to field due to decomposition of residues. Further high moisture content in soil helps in taking crops with residual moisture. The yield of crops is better for two to three years in post flood situation. Large scale coverage of crops after flood helps in mitigating loss due to flood. Thus, External interventions are highly essential in production process as flood breaks the backbone of the farmers.

Crop damage and risk analysis:

The flood causes submergence of crop plants restricting respiration and gaseous exchange thereby ceasing all growth processes leading to death and decay. Aerobic crops cannot resist standing water and submergence. Rice resists standing water due to supply of oxygen to root through aerial parts but cannot tolerate submergence for more than 7days. Tolerance submergence varieties like Swarna Sub 1& Deep water paddy can resist flood to the extent of 15 days when at rapid growth stages. But at early stage of growth, sudden rise of water level, speed and muddiness of water are the factors which makes most of the varieties susceptible to damage under submergence. Since rice is the main crop in rainy season, the Extent of damage varies according to days of submergence depending on topography of the land. In addition to that crops are also damaged due to sand cast.

There are around 4, 93,261 hectare chronically flood prone and 0.94 lakh hectares chronically drought prone areas in different districts of Assam. In Assam every year, 3 to 4 lakh hectares cropped areas gets affected by flood along with 0.50 – 0.75 lakh hectare by drought during June-September.

Table: Year wise incidence of flood, submergence and crop damage

Year	Crop Area Submergence (HA)	Crop Damage (HA)	Affected Farm Families (Nos)
2007-08	**817565**	**450781**	**817698**
2008-09	**791084**	**419261**	**906806**
2009-10	**1246925**	**869342**	**1595493**
2010-11	**409863**	**185794**	**495194**
2011-12	**289465**	**87584**	**224980**
2012-13	**1474973**	**612063**	**1820511**
2013-14	**134712**	**74634**	**116660**
2014-15	**867543**	**417104**	**1163187**
2015-16	**786432**	**341178**	**564735**
2016-17	**28217**	**245802**	**550815**
2017-18	**2.79865**	**1451513**	**629035**
2018-19		**12849.49**	**66679**
2019-20	**236059.76**	**214540.74**	**801579**

Assam falls in the highest rainfall intensity zone of the country the precipitation here is mainly due to the south- west Monsoon(June & September). Average annual rainfall in the region is very high and ranges from 1750 mm in the plains to about 6400mm in the huge volume of water rushes through narrow bowl shaped valley of Assam to the Bay of Bengal ravaging the area with Floods and land erosion. During this year the state received actual rainfall during the month of June, July and August are 375.2, 376.5 and 380.2 mm respectively along with excess pattern of rainfall in the district of Barpeta, Bongaigaon, Cachar, Chirang, Karimganj, Kokrajhar, Morigaon, N.C Hills, Sonitpur etc. resulting four waves of flood due to mainly heavy rainfall in the neighboring country/state and due to breaching of major river Brahmaputra and its tributaries

With the consequences of three waves of inundated Flood mainly Early Season Flood (June to July and Mid-SeasonFlood (Mid-August to September) out of 3.82 lakh Ha. Area under crop submerged, 236059 ha have been damaged (50% or more) in 31

districts. Rice is the staple food of the people of Assam and Sali Rice is the part of their culture. Sali Rice is the main crop of the majority of the farmers constituting about 80% of the total population of the State out of the total rice area (24.94 lakh ha.) the Sali Rice alone occupies 19.25 lakh ha. (77.19% of total rice area) targeted to be cultivated during kharif season. During the current year out of 17.33626 lakh ha covered under Kharif crops (As on 30.08.2019), 1.73 lakh ha Sali paddy completely damaged along with 5055 ha under Sali paddy seedling & other crops which has been Summarized below-

- **Total nos of affected district- 31nos**
- **Total nos of affected village- 6471**
- **Total nos of farm families- 801579**
- **Major crops damage (50% or more)- transplanted Sali paddy(118171.91 lakh ha), Bao paddy (8488 lakhs ha.), vegetables (26623 ha.), Sugarcane (1619.50 ha) & other crops 8081.72**

The department has taken up initiative to recoup the crop loss and finalized the total requirement assistance as per cumulative crop damage report as per Manual of State Disaster Management Authority as follows

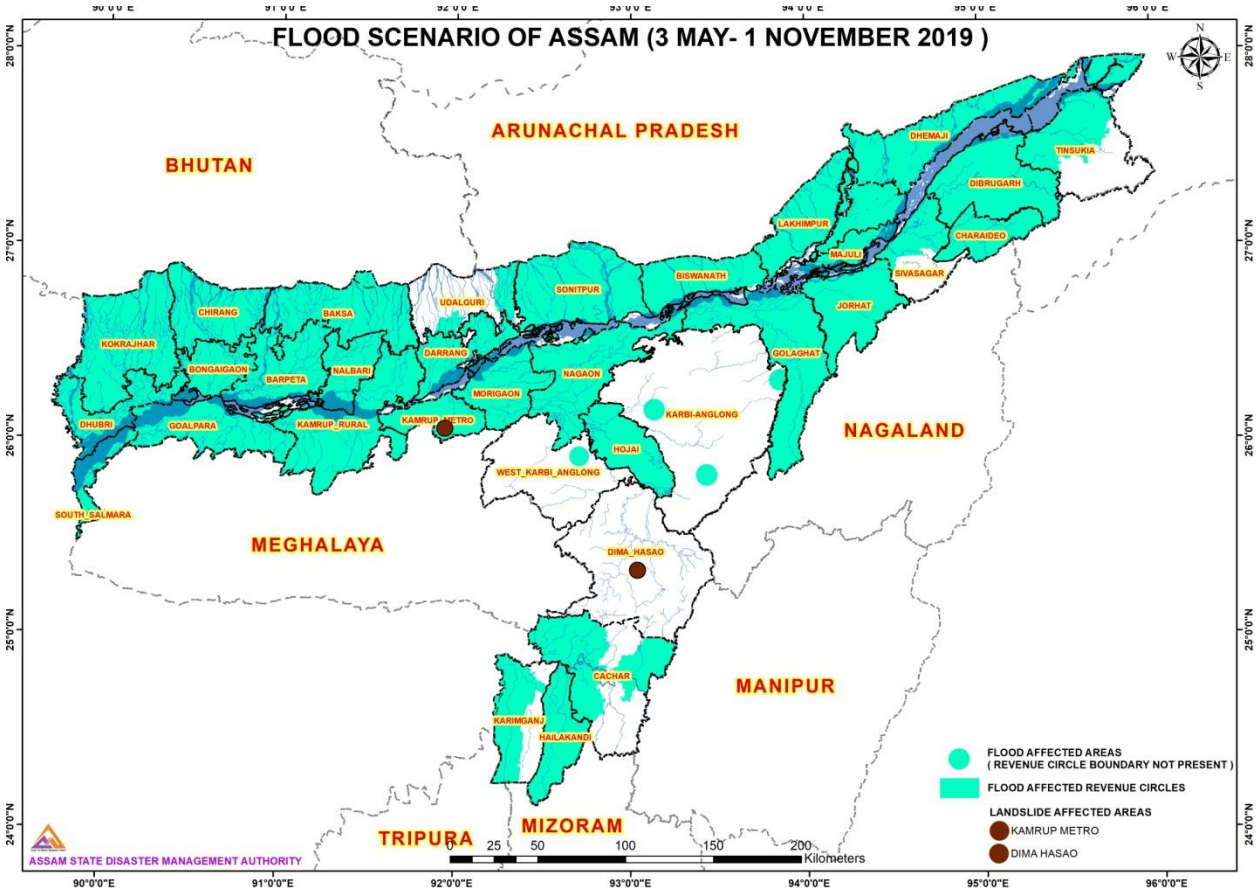
- Assistance for Agricultural input subsidy to **SMF-Rs. 15732.34 Crores**
- Removal of silt deposition- **Rs. 538.37 Crores**
- Damage infrastructure- **Nil**

Table: A brief scenario of chronic flood attack in the state during 2019

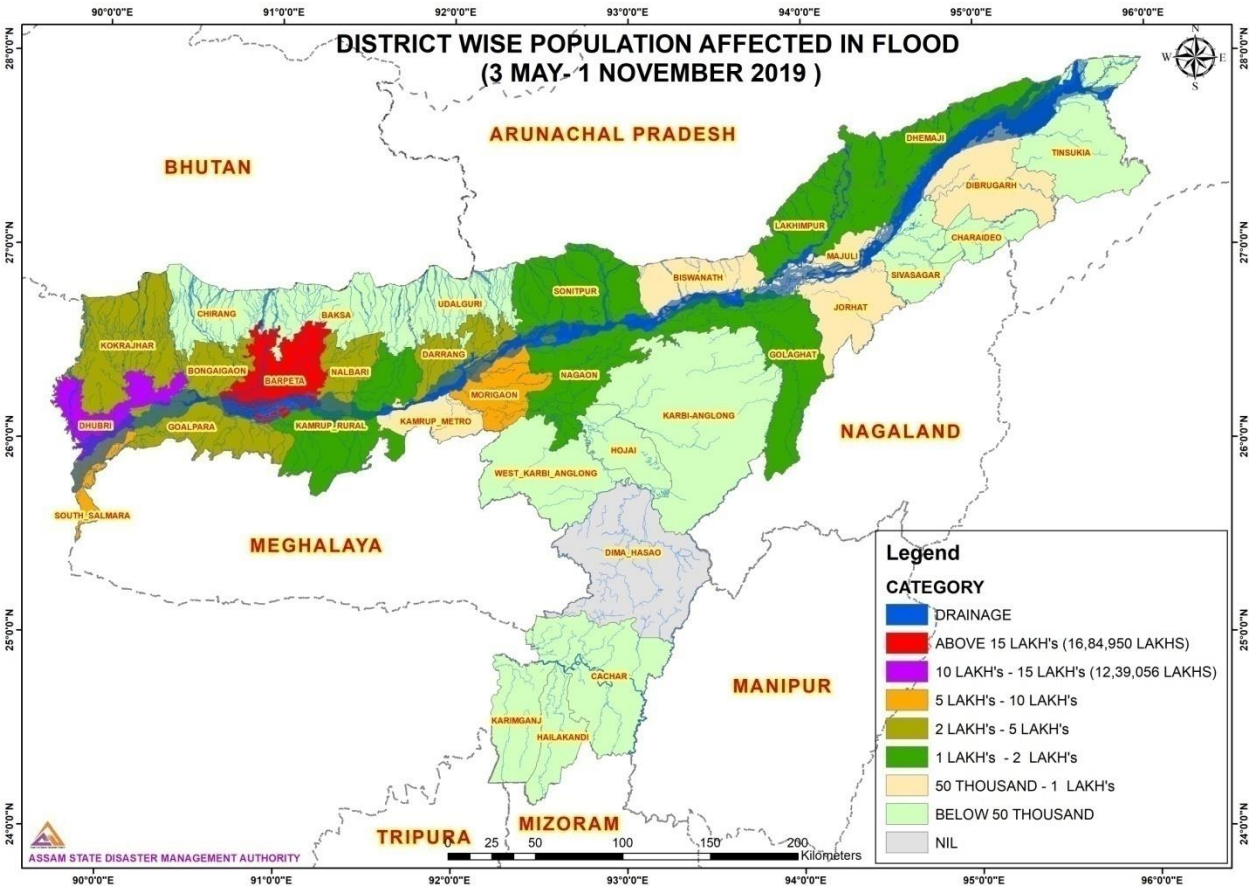
Flood waves	Nos. of district affected	Total crop area affected (ha)	Farm family affected (Nos)
1st wave	29	214540.74	801579
2nd wave			
3rd wave			
4th wave	2	18352.00	

**Data Source: Directorate of Agriculture

Assam is a flood prone state with frequent and long inundation of basins sub basin of the Brahmaputra, Barak and other small rivers, the extremely dynamic monsoon region vis-à-vis the unit physiographic setting of the basin has considered as the single important cause for frequent occurrence of flood in this region.



Source: ASDMA



Source: ASDMA

The Brahmaputra valley in Assam is one of the most hazard prone regions of the country with more than 40% of its land (3.2 million ha.) susceptible to flood damage and every year, the state faces heavy devastation due to occurrence of devastating flood. According to flood hazard at lass of Assam (ISRO, 2011), approximately 28.31 %(22.1 lakh ha) of land in the state of Assam was affected by flood hazard between the period 1998 to 2007

A brief scenario of chronic effect of flood in the state during the ten years

Year	Total crop area affected(ha)	Farm family affected(Nos)
2009-10	869342	1595493
2010-11	185794	495194
2011-12	87584	224980
2012-13	612063	1820511
2013-14	74634	116660
2014-15	417104	1163187
2015-16	521735	649544
2016-17	282127	550815

2017-18	**1451513**	**629035**
2018-19	**12849.49**	**66679**
2019-20	**214540.74**	**801579**

Drought: Drought in India refers to a situation when rainfall is less than or equal to 5 mm for the week. And agricultural drought is a period of four such consecutive weeks from mid-May to Mid-October or 6 such weeks during rest of the year. Almost every a gap of 1 or 2 year Assam is experiencing some sort of drought like situation or moisture stress like condition due to uneven and erratic distribution of monsoon rains. The early season, mid-season and late season droughts affect crop stand and production to different extents basing on their intensity, duration and type and stage of the crops.

Comprehensive De-Siltation Programme in Crop Field in Flood Affected Area

Siltation due to floods can be categorized into:

1. **Harmful:**
   This can be divided into two groups:
   a. Economically feasible for de-siltation: Siltation of depth of 11 cm to 70 cm, needs mechanical/manual de-siltation to put to cultivation without change in the cropping pattern
   b. Economically nonfeasible to Disiltation: which cannot be de-silatted due to high depth (more than 70 cm) coarse texture and infertile structure of sedimentation.

2. **Non Harmful:**
   a. Siltation needing 15cm harrowing: the fertile clayey (Palash)or silty and less than 4 cm deep sedimentation could be harrowed in order to make it productive/more productive than the pre flood situation.
   b. Siltation needing 25cm deep ploughing: the semi fertile, silty and 4 cm to 11 cm deep sedimentation would require deep ploughing and corresponding change in the cropping pattern.

   Now on the above matrix for management of siltation is proposed below:

Depth of Siltation	Category	General Recommendation	Proposed post flood measures
<4CM	Non harmful to crop production	15CM harrowing	15CM harrowing
4CM-11CM	Non harmful but may need change in cropping pattern	25CM ploughing	25CM deep ploughing. Cropping as per scientific recommendation.
11CM-70CM	Harmful but feasible for desiltation	Manual/mechanical/sand/silt removal. Change in cropping pattern	Manual /mechanical sand removal

>70CM	Harmful and not feasible for desiltation	3-4 year green manuring followed by legumes Dhainsa cultivation	Dhainsa cultivation 3-4 year green manuring followed by legumes

Hazard wise vulnerability of Agricultural & horticultural crops to various hazards to which the department/state is prone to:

Nature of Hazard	Vulnerable locations	Stimulus	Outcome
Flood	**Flood Prone Areas**	**Increases intensity and frequency of rainfall**	**1. Crop loss in the existing filed crops and for horticultural crops especially non perennials like vegetables, betel vine, spices and ornamentals, Medicinal and aromatic crops. Fruit crops like Banana, Papaya and Pineapple will damage. 2. Damage of new perennial plantations 3. Disruption to road transport affecting transport of horticulture produces. 4. Damage to Departmental buildings and farms 5. Damage to protected structures.**
Drought	**Golaghat, Sivsagar,Dibrugarh, Hojai,Darrang,Baksha**	**Less rainfall and water shortage**	**1. Crop loss (Area) 2. Crop production loss 3. High mortality in new plantations**
Cyclone	**Lower and Upper Brahmaputra Valley Zone**	**Storm**	**1. Crop loss of existing field crops and horticultural crops both perennials and non perennials.**

			2. Damage to departmental buildings and farms **3. Damage to protected structures**
Hail Storms	**Anywhere in the State**	**Falling of hails**	**Crop loss of existing field crops and horticultural crops both perennials and non perennials**
Insect,Pest	**Anywhere in the State**	**Insect pest out brake**	**Crop loss**
Disease	**Anywhere in the State**	**Disease out break**	**Crop loss**
Earthquake	**Seismic zones of entire Assam**	**Waves and Shocks**	**1. Damage to departmental buildings and farms** **2. Damage to protected structures**

Cyclone/ high wind:

Cyclone is not preventable. However, the extent of loss and damage can be minimized through proper planning. Planning for cyclone disaster management can be made in three stages: pre-cyclone, during cyclone, and post-cyclone. Planning at all these stages is important. Since the people in villages are affected persons, their involvement in the management at all three stages is necessary.

Assam have been a constant victim of cyclonic weather at irregular intervals and the intensity and frequency of these are on the rise very often inflicting damage to standing crop viz. Boro/Seminar paddy crops during PI Stage/Flowering stage.

Risks involved:

1. The crops are submerged due to heavy downpours associated with a cyclonic weather which is worsened by the impact of high wind.
2. The crops at flowering and fruiting stage are affected to a greater extent due to lodging and shattering of pollens, many a times complete damage of the crop.
3. There is problem of sand casting in the riverside areas.

4. The supporting infrastructures are likely to suffer severe damage impairing the restorative measures.

5. The loss to life and properties are so great that the restoration of agriculture is relegated to a lower priority.

6. The disruption of communication, power and transport is likely to delay the restorative efforts and require large funds and co-ordination of all functionaries.

Epidemic attack of pest and diseases:

Owing to the burgeoning population growth and to meet the demand for food, feed and fodder the farmers indulge in and often induced to indulge in intensive agriculture in various combinations. This has led to a situation where there are increased incidences of pest and diseases and often in epidemic form. Conducive crop weather situation created by unsustainable anthropogenic activities coupled with the impact of climate change triggers multiplication of the races of pests and diseases often to epidemic scales requiring more comprehensive plant protection measures to keep things under control. With the remembrance of the Bengal famine during 1942 that was the result of such an epidemic form of Brown Spot of rice (*Helminthosporium/ Bipolaris oryzae*). Thus, disease and pest incidence have assumed greater significance in the frame work of disaster management in the modern crop cultivation practices and ecosystem. The pest scenario and its incidence in the State vary from crop to crop and season to season because of erratic weather conditions. In case of paddy there was two major pests incidence during last five years viz. Swarming caterpillar (Spodoptera mauritia) and Rice Hispa *(Dicladispa armigera*) that resulted in devastation of thousands hectares of wet land paddy. Similarly there was major pest incidence in pulses - Cutworm. (*Spodoptera litura*) in Black gram, Yellow Mosaic Virus in Green gram, Top shoot borer in Sugarcane, SHoot & Fruit borer in Brinjal, Fruitfly in Cucurbits, Sigatoka &Panama in Banana crop resulting in huge crop loss which may be denoted as disaster for the farmers in a location basis way. Further the normal pest incidence of other crops varies from5-15% including rodent problem (> 50 Nos LBC in isolated area). Conducive crop weather conditions at peak periods of activity coupled with inappropriate plant protection measures often aggravate the pest and disease attack inflicting irreparable damage to crops and their productivity.

Pest and Disease	Endemic Districts
Swarming Caterpillar- Paddy	Dhubri, Bongaigaon, Goalpara, Chirang, Sonitpur, Dhemaji, Lakhimpur
Blast of Paddy	Isolated pockets of all districts
Leaf Folder in Paddy	Isolated pockets of all districts

YMV in Pulse	Morigaon, Jorhat, Dhemaji, Golaghat
Spodoptera in Black gram	Morigaon, Nagaon, Barpeta, Goalpara
Early SB & Top SB in S/ Cane	Jorhat, Sonitpur, Baksa
Panama disease of Banana	Kamrup. Morigaon, Nagaon, Jorhat, Golaghat, Sibsagar, Dibrugarh, Lakhimpur, Sonitpur, Udalguri
Fruitfly in Citrus	Kamrup, Darrang, Tinsukia, Golaghat
Shoot & Fruit Borer in Brinjal	Dhubri, Goalpara, Kamrup, Barpeta, Nagaon, Morigaon, Sonitpur, Golaghat

Department has taken some schematic initiative to combat the pest menace as and when necessary

Table: Peak Period Activity of Major Pest and Disease

Crop	**Pest/ Disease**	**Peak Activity Period**	**Disposing factor**	**Area most prone**	**Remarks**
Paddy	Stem Borer	July-Nov Feb-April	High Humidity	All rice growing area	Tillering & Heading
	Leaf Folder	July-Nov Feb-April	High Humidity	All rice growing area	Nursery to boot leaf stage
	Swarming Caterpillar	July-August	After Flash	Dhubri, Goalpara, Bongaigaon, Chirang, Kamrup, Morigaon, Nagaon, Lakhimpur, Dhemaji	Tillering
	Blast	July-January	Night temperature below 21 C	All rice growing area	Tillering 7 Panicle stage
	Brown Spot	July-Dec	High Humidity & Temperature	All rice growing area	Tillering stage

	BLB	July-Nov	High N Fertz use & after hail Storm	All rice growing area	Tillering to Maximum Tillering
	Sheath Blight	July-Sept	High Humidity	All rice growing area	Tillering
Pulse	Spodoptera	Sept-Oct & March	-	All Pulse growing area	vegetative
	YMV	Sept-Oct & Feb- March	-	All Pulse growing area	vegetative
Oil Seeds	Mustard Aphid	Dec-Feb	Cool Humid Condition	All Mustard growing areas	Vegetative Maturity stage
Citrus & Orange	Trunk beetle	Dec-Feb	Shade Condition	All citrus/Orange growing areas	Flowering fruiting stage
	Fruitfly	Nov-Dec	Cool Humid	All citrus/Orange growing areas	Early fruiting stage
Banana	Panama	Sept-Feb	Cool Condition	All banana growing areas	Malbhog variety
	Sigatoka	Sept-Feb	Cool Condition	All banana growing areas	All Varieties at all stage
Cucurbits	Downey Mildew	Sept-Feb	Cool Condition	All Cucurbits	Flowering fruiting stage
	Powdery Mildew	Sept-Feb	Cool Condition	All Cucurbits	Flowering fruiting stage
	Fruitfly	All the year	Cool Condition	All Cucurbits	fruiting stage
Potato	Late Blight	Sept-Feb	Cool Condition	All potato growing areas	All stage including tuber development stage

Some general strategies adopted for Pest and Disease Control:

- Surveillance in pest prone areas.
- Monitoring the major pests like Swarming Cater Pillar, YSB, Blast, BLB of Paddy and YMV, Cutworm in pulses and collar rot, infestation of Spodoptera in pulses etc.
- Critical inputs provided to counter intense pest and disease attack.

- Capacity building of field functionaries and farmers on a regular basis.
- There is a need to build up season specific pest maps on endemic areas.
- In case of any pest emergency (attack of major pest) coordinated efforts are put in taking prophylactic / community pest control measures through affected farmers and the functionaries of grass root level under the expert supervision of specialists/ Scientists of SAUs/ ICAR institutes etc.
- Plant protection equipment are being made available to the farmers at subsidized rate.

Chapter: 3

Budget of Agriculture Department

Budget for Disaster Management

Sl No	Year	Approved Budget of Dept. (Total Budget)	Specific Budget for DM (if any)	DM Budget(in lakhs)
1	2008-09	51017.57	DM Scheme	597.45
2	2009-10	60924.66	DM Scheme	700.00
3	2010-11	77577.27	DM Scheme	1000.00
4	2011-12	92391.20	DM Scheme	995.24
5	2012-13	92507.83	DM Scheme	901.07
6	2013-14	120033.46	DM Scheme	1000.00
7	2014-15	132633.57	DM Scheme	1000.00
8	2015-16	172477.49	DM Scheme	1000.00
9	2016-17	146010.69	DM Scheme	674.90
10	2017-18	183777.72	A special drive for combating natural calamity and epidemic (SOPD)	1674.90
11	2018-19	192618.25	A special drive for combating natural calamity and epidemic (SOPD)	1282.54
12	2019-20	196607.83	A special drive for combating natural calamity and epidemic (SOPD)	1100.00

x	Name of Scheme	Type of Scheme	Budget Provision	Scheme Submitted Amount	Amount Sanctioned	Celing Demand Submitted Amount	Balance Amount (6-7)	Ceiling Received	Ceiling Drawan	Expenditure (including committed) 2018-19
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
A	**SOPD**									
1.a	Distribution of Farmers I.Card	SOPD	1107.08	796.54	0	0	0.00	0	0	0
1.b	Agril Information and Publicity	SOPD		310.54	0	0	0.00	0	0	0
2	19 Materials and supplies [Integrated Farming in FTS / Seed farm	SOPD	715.54	0.00	0	0	0.00	0	0	0
3	15 Machinery & Equipment [Women welfare scheme as Gender Responsive	SOPD	468.50	0.00	0	0	0.00	0	0	0
4	**A special drive for combating natural calamity and epidemic [committed]**	**SOPD**	**1282.54**	**1282.54**	**1282.54**	**676.94165**	**605.59835**	**0**	**0**	***676.94165***
5	Revolving fund to ASC	SOPD	175.04	0.00	0	0		0	0	*0*
6	Plant Protection Campaign	SOPD	476.52	476.52	0	0		0	0	*0*
7	Majuli as Organic Hub	SOPD	472.54	472.54	472.54	0		0		
8	Chief Minister Special Scheme [committed against Power tiller to women farmers]	SOPD	2.26	0.00	0	0		0	0	2.26
9	Construction Works etc. in different Districts	SOPD	3399.72	3399.72	874.72	197.05863	677.67	197.05863	197.0586	197.05863
10	Development of Agro Business Clinic	SOPD	2500.00	2500.00	0	0		0	0	*0*
11	Development of Agriculture Farm	SOPD	5000.00	4569.07	0	0		0	0	*0*
12	Tissue Culture Farm	SOPD	1500.00	1500.00	0	0		0	0	*0*
13	Agriculture Tools (Specific Grants-in-Aids under 5th Assam State Finance Commission):Transfer Grants to State Finance Commissiion	TG-SFC	7875.00	7875.00	0	0		0	0	0
14	**Total of SOPD**		**24974.74**	**23182.47**	**2629.80**	**874.00028**	**1283.26**	**197.05863**	**197.0586**	**876.26028**
B	**Centrally Sponsored Scheme**		**State Share [SS]/ Central Share [CS]**					0		
1	Rashtriya Krishi Vikash Yojana (RKVY)	SS	3166.62	2248.97	2248.970	1593.43	655.540	1542.94	1542.94	1542.940

			0	0		0			0	
		CS	28521.700	22555.830	22555.830	19612.210	2943.620	4911.20	4911.203	18319.330
2	Total RKVY :-		**31688.320**	**24804.800**	**24804.800**	**21205.640**	**3599.160**	**6454.14**	**6454.143**	**19862.270**
3	National Food Security Mission (NFSM)	SS	1269.51	490.445	469.89	367.692	102.193	**367.692**	**367.692**	*396.065*
		CS	11421.85	10681.25	10681.25	9884.85	796.400	3750.713	3750.687	*10525.197*
4	TOTAL NFSM:-		**12691.36**	**11171.695**	**11151.14**	**10252.542**	**898.59**	**4118.405**	**4118.379**	**10921.262**
5	National e-Governance Programme in Agriculture (NeGP-A)	SS	7.10	**0**	**0**	**0**	0.000	0	0	0
		CS	63.89	**0**	**0**	**0**	0.000	0	0	0
6	Total of Ne-GP		**70.99**	**0**	**0**	**0**	0.000	0	0	0
7	National Mission on Oil seed & Oil Palm (NMOOP)									
a	MM-I (Oil Seeds)	SS	306.93	**0**	**0**	**0**	0.000	0	0	0
b	MM-I (Oil Seeds)	CS	1319.86	1227.82	1227.82	1227.82	0.000	1106.82	1106.82	1106.82
c	MM-II (Oil Palm)	SS	33.12	9.05	0	**0**	0.000	0	0	0
d	MM-II (Oil Palm)	CS	298.14	87.10	5.62	**5.62**	0.000	0	0	0
8	**Total SS**		**340.05**	**9.05**	**0**	**0**	0.000	**0**	**0**	**0**
9	**Total CS**		**1618.00**	**1314.92**	**1233.44**	**1233.44**	0.000	**1106.82**	**1106.82**	**1106.82**
10	**Total of NMOOP**		**1958.05**	**1323.97**	**1233.44**	**1233.44**	0.000	**1106.82**	**1106.82**	**1106.82**
11	**4891-National Mission on Sustainable Agriculture (NMSA)**									
a	Soil Health Card (SHC)	SS	55.51	62.41	62.41	62.41	0.000	62.41	62.41	62.41
b	Soil Health Card (SHC)	CS	499.50	561.70	561.70	561.70	0.000	561.7	561.7	561.7
c	Soil Health Management (SHM)	SS	18.66	0	0	0	0.000	0	0	*0*
d	Soil Health Management (SHM)	CS	167.96	0			0.000	0	0	*0*
e	Raifed Area Development (RAD)	SS	44.00	0	0	0	0.000	0	0	*0*
f	Raifed Area Development (RAD)	CS	396.00	0			0.000	0	0	*0*
g	Parampragot Krishi Vikash Yojana (PKVY)	SS	240.39	5.59515	0	0	0.000	0	0	*0*
h	Parampragot Krishi Vikash Yojana (PKVY)	CS	629.65	50.35635	50.35635	50.35635	0.000	50.35635	50.35635	*0*
12	**Total SS**		**358.56**	**68.00515**	**62.41**	**62.41**	0.000	**62.41**	**62.41**	**62.41**

13	**Total CS**		**1693.11**	**612.06**	**612.06**	**612.06**	**0.000**	**612.05635**	**612.0564**	**561.7**
14	**Total of NMSA**		**2051.67**	**680.06**	**674.47**	**674.47**	0.000	**674.46635**	**674.4664**	**624.11**
15	**National Mission on Agril. Extension and Technology (NMAET)**							0		
a	Sub-Mission on Agril. Extn. (SMAE)	SS	289.02	92.34	92.34	92.34	0.000	92.34	92.34	88.33
b	Sub-Mission on Agril. Extn. (SMAE)	CS	2601.18	831.04	831.04	831.04	0.000	831.04	831.04	802.72
c	Sub-Mission on Agril. Mechanization (SMAM)	SS	55.00	55.00	0	0	0.000	0	0	0
d	Sub-Mission on Agril. Mechanization (SMAM)	CS	599.60	495.00	495.00	495.00	0.000	0	0	0
e	Sub-Mission of Seed and Planting Materials	**No SS**	0	0	0	0	0.000	0	0	*0*
f	Sub-Mission of Seed and Planting Materials	CS	300.00	300.00	300.00	0	300.000	0	0	*0*
16	**Total SS**		**344.020**	**147.340**	**92.340**	**92.340**	0.000	**92.340**	**92.340**	**88.33**
17	**Total CS**		**3500.780**	**1626.040**	**1626.040**	**1326.040**	300.000	**831.040**	**831.04**	802.72
18	**Total of NMAET**		**3844.800**	**1773.380**	**1718.380**	**1418.380**	300.000	**923.380**	**923.380**	**891.05**
19	Pradhan Mantrir Krishi Sinchayee Yojana (PMKSY)	SS	165	122.22	122.22	122.22	0.000	122.22	122.22	122.22
		CS	1485	1100.00	1100.00	1100.00	0.000	1100.00	1100.00	1100.00
20	**Total PMKSY:-**		**1650**	**1222.22**	**1222.22**	**1222.22**	0.000	**1222.22**	**1222.22**	1222.22
21	Pradhan Mantrir Fasal Bima Yojana (PMFBY)	SS	2882.525	**2882.5**	2882.50	2853.47	29.030	353.47	183.79	*183.78535*
		No CS	0	0	0	0		0	0	*0*
22	**Total PMFBY:-**		**2882.5**	**2882.5**	**2882.50**	**2853.47**	**29.03**	**353.47**	**353.47**	**183.78535**
	Total SS		**8533.39**	**5968.53**	**5878.33**	**5091.56**	786.763	**2541.07**	**2371.39**	**2395.75**
	Total CS		**48304.33**	**37890.10**	**37808.62**	**33768.60**	4040.020	**12311.83**	**12311.81**	**32415.77**
23	**Total of CSS**		**56837.690**	**43858.627**	**43686.941**	**38860.159**	**4826.783**	**14852.901**	**14852.879**	**34811.517**
C	**Assam Agri. Business & Transformation Project (APART)**	SS [20%]	1646.20	1600.00	1600.00	1600.00	0.000	1600.00	1600.00	*118.61*

	(WB)	WB share [80%]	6584.80	6400.00	6400.00	6400.00	0.000	5000.00	5000.00	*0*
1	**Total of APART**		**8231.00**	**8000.00**	**8000.00**	**8000.00**	0.000	**6600.00**	**6600.00**	**118.61**
D	**Assam Agriculture University [separate fund for AAU]**						0.000	-	-	
1	Development of Sericulture College, Titabor [Transfer Grants Educational institue]	TG-EI	0.10	0	0	0	0.000	0	0	*0*
2	Development of AgriculreUnivesity in Barak Valley	TG-EI	100.00	0	0	0	0.000	0	0	*0*
3	Development of Assam Agriculture University, Jorhat Campus	TG-EI	1000.00	1000.00	468.00	468.00	0.000	468.00	Fund yet to be received	*0*
4	Development of Assam Agriculture University, Khanapara Campus	TG-EI	500.00	500.00	500.00	500.00	0.00	0	0	*0*
5	Dharmapur Horticulture Campus	TG-EI	500.00	500.00	0	0.00	0.000	0	0	*0*
6	Sarat Ch.Sinha College ,Bahalpur,Dhubri	TG-EI	500.00	500.00	0	0.00	0.000	0		
	Multipurpose Sports Complex at Khanapara	SOP| D	100.00	100.00	100.00	100.00	0.000	100.00	Fund yet to be received	*0*
7	**Total of AAU**		**2700.10**	**2600.00**	**1068.00**	**1068.00**	**0.00**	**568.00**	**0.00**	**0.00**
E	**Rural Infrstructure Development Fund (RIDF)**									
1	Agriculture Cold Storage	SS	189.00	112.18	0	0	0.000	0	0	*0*
		CS	3591.00	2399.64	2399.64	2399.64	0.000	2205.3205	2205.321	2218.23565
	Total of E.1		**3780.00**	**2511.82**	**2399.64**	**2399.6395**	0.000	**2205.3205**	**2205.321**	***2218.23565***
2	**Rural Infrastructure Development Fund (RIDF)**									
a	Installation of STW against the sanction of 61100 STW (60000 nos STW with disel engine pump sets and 1100 nos. STW with Solar Pump	SS	600.00	600.00	600.00	600.00	0.000	0	0	600.00
		Loan	11400.00	11400.00	11400.00	7250.00	4150.000	0	0	5500.00
b	Installation of STW (STW) against the sanction for 38900 STW (Electrical pump set)	SS	650.00	650.00	650.00	650.00	0.000	0	0	650.00
		Loan	12350.00	12350.00	12350.00	3000.00	9350.000	0	0	9750.00
c	Installation of 10000 Solar PV Powered Shallow Tube Wells	SS	100.00	100.00	100.00	100.00	0.000	0	0	100.00

		Loan	1900.00	1900.00	1900.00	1900.00	0.000	0	0	2827.00
d	Establishment of Soil Testing Quality Control and input testing Laboratories	SS	150.00	150.00	150.00	150.00	0.000	0	0	83.00
		Loan	2850.00	2850.00	2850.00	2850.00	0.000	0	0	1200.00
3	**Total of E.2**		**30000.00**	**30000.00**	**30000.00**	**16500.00**	13500.000	0	0	***20710.00***
	Total of RIDF (E.1 + E.2)		**33780.00**	**32511.82**	**32399.64**	**18899.64**	13500.000	**2205.3205**	**2205.321**	***22928.24***
Grand Total of(SOPD + CSS + EAP +AAU +RIDF)		**=**	**126523.53**	**110152.92**	**87784.38**	**67701.80**	**20082.586**	**24423.28**	**23855.258**	**58734.623**

Chapter: 4

Prevention, Mitigation and Preparedness Plan

Prevention of natural calamities is almost difficult. Prevention is often long term and would require integrated interventions by the state or national governments. However, some measures are taken up to reduce the impact of different disasters on agriculture.

Flood

1. Planting submergence tolerant varieties; (*Swarna sub-1*etc) of paddy in flood prone areas.

2. Raising community nurseries in relatively higher patch of land in the submergence/ flood prone areas and transplanting after flood water recedes.

3. Adoption of **Sunken raised bed method** in areas prone to regular submergence.
4. **Rice –fish farming systems** are adopted in some of the submergence prone areas.

5. Wrapping and propping sugarcane crop to protect them from lodging during submergence is another important practice.

6. Construction/ restoration of check dams, embankments, field bonds/ contour bonding before the onset of monsoon.

7. In areas with greater gradient of slope, *pucca* water/ drainage outlets are to be constructed to protect the farm land from breaking of bonds followed by soil erosion/ sand cast during heavy downpours.

8. Blocked Drainage channels could be opened up adequately.
9. Catchments could be treated appropriately to reduce run-off and soil erosion.
10. Long and medium term weather forecasts are desirable for reducing the impact.

11. Disaster Warning systems could also be helpful not only to save the harvestable standing crop but also shift harvested produce to safer places. Further, they could

    Be helpful in moving farm equipment and machinery to safer places in addition to enhance the preparedness to face the calamities.

Prevention of natural calamities is almost difficult. Prevention is often long term and would require integrated interventions by the state or national governments. However, some measures are taken up to reduce the impact of different disasters on agriculture.

Drought

1. Agronomic packages; Summer ploughing, Conservation tillage, Cropping all the year round, use of organic manures, green manuring, Mixed cropping/

intercropping, Crop substitution, Water harvesting, conservation and management, use of pressurized irrigation systems, sowing short duration and drought tolerant varieties of crops, etc. are being followed.

2. Private lift irrigation points are being established through providing assistance in order to bring more and more areas under assured irrigation.

3. Farm ponds and dug wells are also being established to cater to the farm water needs.

4. Pump sets, pressurized irrigation systems (Sprinklers, Drips, Rain guns etc.) are being provided on subsidy to enable farmers for fetching the much required lifesaving irrigation, especially during times of long dry spells.

5. Canals and their distributaries are being lined and Irrigation channels improved to reduce conveyance losses.

6. Proper irrigation scheduling with appropriate crop planning taking more of low duty crops in the rain fed high lands & drought prone areas.

7. Capacity building exercises are being organized to create awareness among the farmers and extension functionaries in this regard.

Activities and Action to be taken by the Agriculture Department before Flood Season

Before Disaster Plan

Sl.No	Activities	Action	Stipulated Time	Remarks
1.	Awareness camp/ Early Warning	ADO/VLEWs	1st week of April	At FIAC & Farmer's school
2.	Identification of probable vulnerable areas of Crop damage, erosion, Siltation and preparation of list	Sector Team	2nd week of April	Timely selection, approval and submission
3.	Stock of flood resistance, late varieties of	DAO/AS1C/Local authorized dealers	3rd week of April	Timely distribution of seeds

	paddy, pesticides etc.			
4.	Proposal for construction of Seed Bank at high land	DAO/ Agril. Engg.	3rd of April	Storing of farmers own seeds
5.	To coordinate with District Administration	DAO	As and when required	To assist district administration.

Activities and Action to be taken by the Agriculture Department during Flood Season

During Disaster Response plan

Sl.No	Activities	Action	Stipulated Time	Remarks
1.	Control Room	Officials of Agriculture Dept. as formed	As assigned to officals of CR	To receive report from sector, compilation, transmission to ASDMA through DDMA
2.	To visit in submergence of crop areas, close observation and reporting	ADO/ VLEWs/LM in coordination with Sector team	During the period of submergence.	To assess crops affected due to submergence and reporting as per format.
3.	To assist District Administration	Officers of various level	As and when asked for	Rescue and relief operation

Activities and Action to be taken by the Agriculture Department after Flood Season

Post Disaster Recovery Plan:

Sl.No	Activities	Action	Stipulated Time	Remarks
1.	Identification of	Sector Team	Within 3 days of	To submit to

	affected farmers, area affected due to siltation, erosion etc and assessment of loss		receding flood water	DADMC as per SDRF norms and format for prepration of district report, plan etc.
2.	i. Holding DADMC ii. Contingency plan for immediate mitigation	DAO/ DNO	Within 3 days of receiving report from sector team	Security and compilation for submission to DDMA for final selection and approval affected farmers
3.	Final Selection and Approval of affected farmers list, area under siltation, erosion etc.	DDMC	Within 3 days of submission by the DADMC	For taking mitigation measures in time
4.	Contigency plan &estimamte for mitigation of affected stakeholder	DA/DAO	Within 3 days of section and approval of stakeholders	Annexure
5.	Training/ Workshop/Capacity building with the officials and stakeholders	Sector Team with line Deptt. & ATMA	Before taking mitigation measures	At FIAC/Farmer's school/ RSETI with specialists from KVK,AAU
6	i. KCC ii. Crop Insurance	Agril. & Insurance	i. Rabi: August ii. Kharif: April	Bank, Agril. & Insurance
7	To support through existing and ongoing deptt. scheme	DAO/SDAO/ADOs/VLEWS	Need based	To give special attention to stakeholders

Crop pest and diseases:

1. Agronomic packages in line with integrated pest management principles; Summer ploughing, cultivation of tolerant varieties, adoption of appropriate soil, water and fertilizer management techniques, adjustment of showing time to avoid peak periods of activity, Weed control, proper maintenance of drainage channels etc.
2. Preventive plant protection measures; seed/seedling treatment, monitoring pest/ disease incidence through proper surveillance and keeping them under ETL (Economic Threshold Level).
3. Plant protection in a community approach mode.
4. Strict quarantine: intra and inter regional.
5. Capacity building of functionaries and farmers on plant protection.

A. Seed

On an average (1953 to 2019) 4.75 lakh hectares of different crops are affected by flood to various degrees. Paddy being the major crop being affected by flood there in to be sufficient reinforcement measures depending on stage of the crop and the extent of damage. 5% of the paddy seeds distributed *(about 9500 quintals)[4.75*5%*40/100]* and 1900 quintals [4.75*2%*20/100] of non-paddy seeds will be kept in reserve for such emergent needs. Besides, seeds of pulses, oilseeds will also be kept in reserve for making good the crop damage on account of late season flood.

Recommended short duration paddy seeds of varieties as per recommendation of the Assam Agril. University feasible and suitable for the district for such emergency situations in line with the Contingency Plan will be prepositioned in the input godowns. Assam Seeds Corporation Ltd, the major player in the seed distribution process, has been advised accordingly. The location of the Assam Seeds Corporation Ltd is "Agricultural Campus, Khanapara, Guwahati-2

CONTINGENCY PLAN FOR PROVIDING ASSISTANCE TO COMBAT NATURAL CALAMITY/ EPIDEMIC TO THE FARMERS UNDER STATE OWN PRIORITY DEVELOPMENT (SOPD) SCHEME, 2019-20

The State is generally considered as high rainfall areas. The State normally receives around 2% rainfall in winter season (January-February), 25 % in summer season (March-May), 65% in Monsoon season (June-September) and 8% in Post-Monsoon (October-December). In Assam quantum of devastation of flood is unpredictable. Generally, flood occurs during July-September due to high rainfall during monsoon season and some time it also occurs during October in the State affecting the standing Sali Paddy. In the flood affected Zones (low lying areas), the existing Sali paddy crop is vulnerable to the attack of pest particularly the swarming catterpillar which is also a common phenomenon. To combat the menace adequate PP measures including buffer stock of pesticides is to be maintained. On the other hand, sometimes drought like situation occurs during June-July due to deficit rainfall as a result of which farmers cannot transplant their seedling in the main field or in some cases transplanted Sali Paddy suffers from drought like situation. The agro ecological situation of Assam is suitable for cultivation of rice. Sali rice is the main crop of the farmers involving about 80% of total population of the state. Out of the total rice areas (24.95 lakh ha), the Sali rice area alone occupies 18.83 lakh ha (75.47% of total rice area) and cultivated during Kharif season. Over and above sporadic affect of hail storm destroying harvestable summer paddy and vegetables crop has been observed in the state.

The natural calamity is a regular phenomenon and one of the major threats of the state. There are around 4.93 lakh hectare chronically flood prone and 0.94 lakh hectares chronically drought prone areas in different districts of Assam. In Assam every year, 4 to 6 lakh hectares of cropped areas get affected by flood along with 0.90 -1.00 lakh hectare by drought during June-September.

Table-1

A brief scenario of chronically flood affected scenario in the state during the last nine years is shown below		
Year	**Total crop area affected**	**Farm family affected (Nos)**
2009-10	869342	1595493
2010-11	185794	495194
2011-12	87584	224980
2012-13 (Two waves)	612063	1820511
2013-14	74634	116660
2014-15	417104	1163187
2015-16	521735	649544
2016-17	282127	550815
2017-18	1451513	629035
2018-19		
2019-20		

2. Problems from unprecedented Floods & Drought:

I. Each year 3-4 nos. of flood waves destroy the cultivated crops in riverbanks apart from eroding fertile cultivated land and brings extreme miseries especially to small and marginal farmers.

II. Occurrence of flood during peak period of Sali paddy transplanting or after transplanting (June-July) destroys seedling in the seed beds and transplanted Sali Paddy fields. If, flood occurs late during July-August and if flood water stagnation prolongs more than a week the predominantly available varieties of rice are unable to tolerate resulting complete damage of both seedling and standing Sali rice. The damage of the crop has to be reduced through re-plantation for regaining the income.

III. Some time, there prevails drought like situation in many districts due to deficit rainfall during peak transplanting period of Sali rice (July –August). As a result either farmer cannot transplant Sali seedlings in the main field or the standing crops in the main field suffer from water stress conditions affecting the yield drastically.

IV. The uncertainly of harvesting winter and autumn paddy due to unpredicted flood and drought conditions the productivity of rice is low despite high potentiality during kharif season.

3. **Remedial measures necessary:**

a) Distribution of stress tolerant varieties of rice viz. submergence tolerant rice variety i.e. Swarna Sub-I in flood prone areas and drought tolerant rice variety viz. Sahbhagi Dhan, Dichang in drought prone areas to withstand stress conditions.

b) Seed Treatment is of paramount importance to save the crops from pest and diseases in nursery bed as prophylactic measure. The high humidity condition of Assam is much favourable for incidence of pest & diseases causing heavy crop damage. Hence, seed treatment chemicals and PP chemicals will be provided to the farmers at free of cost with need based application.

4. Main Objectives of the scheme:

a. To overcome the challenges that may arise due to occurrence of recurrent flood**,** unpredicted drought like situation, pest epidemic and hail storm.

b. To compensate the crop loss of farmers caused due to natural calamities like flood, drought, hail storm and pest epidemic.

c. To maintain the level of production in the natural calamity and epidemic disaster prone areas maintaining sustainable production and productivity of field crop in Assam.

5. Targeted group:

The chronically affected farmers of flood, drought, pest epidemic and hail storm areas will be covered under the scheme.

6. Targeted Districts:

All affected districts as well as rainfall deficit districts where crop damage is more than 50% caused due to flood/rainfall deficit. The district wise allotment will be made on final assessment of crops loss in consultation with the DAO concerned.

7. Eligibility criteria:

i) The farmers of flood drought /pest epidemic/hail storm prone areas will be eligible for getting benefit of submergence/drought tolerant paddy and other seeds as per scheduled propramme.

ii) The farmers whose Sali rice field is affected more than 33% due to flood will get benefit of Sali paddy seedlings. Priority should be given to the small and marginal farmers on the basis of extent of damage.

iii) The small and marginal farmers of flood/drought prone areas will be given priority while selecting for distribution of submergence/drought tolerant paddy seeds.

iv) All selected farmers will be eligible for getting seed treatment chemicals and Plant Protection Chemicals provided their crop field are affected by pest and diseases pesticides etc. will be given on need based basis on the recommendation of the field level officer of the concerned district/DAO.

8. Beneficiary Selection Committee: The Beneficiary Selection Committee in LAC level will consist of the following.

- Circle Officer (senior most) - Chairman
- Sr. most ADO of the LAC - Member Secretary
- Other ADOs of the LAC - Members
- Two PRI members (one male and one female - Members
- Representative of the local MLA - Members

After confirming the receipt of the goods as per indent and after due satisfaction by the Committee comprising of CO, ADOs, AEA, PRIs (male and female) and MLAs representive staff will make necessary arrangement for distribution of inputs to the selected beneficiaries.

Procedure for Maintenance of records:

ADOs and AEAs shall have to maintain proper records of beneficiaries list and APRs of distribution of inputs. The SDAO/DAO concerned at sub division & district level respectively shall be responsible for submission of monthly progress report. In addition, proper documentation of implementation of the project including result of crops with area coverage and yield obtained is to be submitted periodically.

Proposed Contingency Plan under Disaster Management Scheme for the year, 2019-20

Sl. No.	Particulars	Unit	Physical	Financial Amount (Rs.in lakh)
1	Allocation of fund for community nursery for 700 ha @ Rs.55000/ ha	ha	1952	89792000
2.	i. Distribution of PP Chemical (need base application) @ Rs.196/lit. (Chloropyriphos-20 EC)	litr	25000	9500000
	Distribution of PP Chemical (need base application	Lit	15000	7500000

	@228/-per lit (Quinolphos 25 EC)			
	Malathion dust (5%)	Kg	10000	1000000
3.	Scheme Management cost/ mobility/O.E etc. @ 2%			2208000
	Total expenditure of the scheme			**110000000**

N.B: i) There may be inter component flexibility based on final rate of the agriculture inputs approved by the departmental Purchase Committee for the year 2019-20.

CHECK LIST

1	Name of the Scheme	Disaster Management, 2019-20
2	Purpose of the scheme	a. To overcome the challenges that may arise due to occurrence of recurrent flood and unpredicted drought, like situation, pest epidemic and hail storm. b. To maintain the level of production and productivity in a sustainable way in the affected areas of natural calamities and epidemic disaster in Assam.
3	Where it will be implemented	The scheme will be implemented in the natural calamity and epidemic disaster areas in the districts of Assam during Kharif/Rabi season, 2019-20.
4	What will be the outcome?	a) Approximately 62918 Ha affected areas to be covered providing benefit around minimum 1,88,754 nos of affected farmers in natural calamity/ epidemic disaster. b) To be maintained the level of production and productivity in the affected areas of natural calamity/epidemic disaster.
5	Whether rates of different agril inputs proposed under the scheme have been approved and its validity.	
6	Proposals from the DAOs for the scheme (if any)	Demand for raising Community Nursery from local improved var. and demand for Rabi crops to recoup crop loss
7	Time frame for implementation of the scheme	Financial year, 2019-20 (Kharif and Rabi crops)
8	Officer responsible for implementation of scheme	DDA (P&O) as Nodal officer.

9	Evaluation of impact of different interventions of the scheme of the farmers	Distribution of Sali paddy seedlings from community nursery will raise area of Sali paddy and Rabi seeds will recoup crop loss.

POST FLOOD DISASTER CONTINGENCY PLAN

COMPREHENSIVE STRATEGY FOR POST FLOOD SITUATION FOR GROWING RABI CROPS IN ASSAM-2019-20

Introduction

The natural calamity is a regular phenomenon and one of the major threats for our state. The annual normal rainfall in Assam is 2395.8 mm of which 2001.0 mm occurs during Kharif season and 294.8 in Rabi season. The total net cropped area is 27.53 lakh hectares and the chronically flood prone area is 4.75 hectares, the chronically drought prone area is 0.94 lakh hectares. The pre-monsoon months i.e., March to May receive 654.3 mm rainfall, which is erratic and unpredictable.

The present wave of flood has caused immense damage to the rice crop and suffering to the live-stocks besides inflicting sufferings to the human beings. The flood has occurred in the state at a time when the farmers are getting ready for transplanting the Sali rice, which is the main crop of Assam. For many, this is the only cereal crop in the State. The current early flood was a devastating one damaging **122655 ha.** of crop land involving **521843 nos. of farm families** in **4589 villages**. Agriculture Department has already started supplying of Sali paddy seeds to the farmers for conducting different cluster demonstrations under NFSM, BGREI & RKVY for the year, 2019-20. Moreover, the Government has already sanctioned an amount of Rs.1100.00 lakh under the scheme "Combating Natural Calamity & Epidemic" during the year 2019-20" in order to minimize the impact of probable flood through raising of community nurseries in the districts. It is attempted to cover an area of almost 20000 ha of flood affected area through supply of Sali paddy seedlings of variety Ranjit sub-1 having the characteristics of submergence tolerance ability for a period of 10-15 days to the small and marginal farmers at free of cost.

But many a time, the flood comes more than once in a single year starting from June to August. If the flood occurs in the month of **August (late flood),** there is no time to go for raising

seed for Sali paddy cultivation. In that case we have no other option but to go for direct sowing of short duration rice varieties like **Luit, Dishang, Kolong, Dikhow, Heera** etc. in the month of August or latest by 1st week of September.

Different acceptable duration of Rice varieties for different time of sowing:

Time of sowing of seeds	Acceptable duration of rice varieties (sowing to harvesting)	Example of varieties
Within mid of July	120-135 days	Lachit, Chilarai, **IR-64**, **IR-50**, Govinda, Jaya, Basundhara, Satyaranjan, Jaymati, Kanaklata etc.
Within 3rd week of July	110-120 days	**IR-50, IR-64,** Jyotiprasad, Bishnuprasad etc.
Within last week of July	100-110 days	**Luit, Dishang**, Kolong, Dikhow, Jyotiprasad, Bishnuprasad etc.
Within mid of August or latest by 1st week of September(**Direct sowing**)	≤ **100 days**	**Luit, Dishang**, Kolong, Dikhow, Heera , etc.

Accordingly, as a precautionary measure, a contingency plan for direct sowing of Sali paddy has also been prepared on the basis of availability of seeds for an amount of Rs.**32.50** lakh against supply of 1000 qtls seeds.

In view of substantial damages caused due to the recent flood throughout the state, there is likelihood of significant loss in Kharif paddy production since expected yield may not be achieved as desired on account of loss of seedlings and delayed transplantation. Therefore, it is necessary to formulate a comprehensive plan for summer paddy and other Rabi crops including oil-seeds, pulses, and vegetables to compensate the loss and production considering availability of assured irrigation as well as potentiality to create irrigation into account.

The objectives of the comprehensive plan are as follows:-

1. To overcome the challenges arise due to natural calamity like flood in different period of time.
2. To compensate the loss of the flood affected farmers and
3. To maintain the level of production.

Components:

1) Mustard with micronutrients (Borax) and Pesticides.
2) Black gram & Green gram seeds
3) Pea Seeds
4) Summer Paddy with NPK fertilizer mixture (15:15:15)
5) Assorted vegetables packets

ASSESSMENT OF ADDITIONAL FUNDS REQUIRED BEYOND THE FUND UNDER DIFFERENT DEPARTMENTAL SCHEMES LIKE, RKVY, NFSM,BGREI AND SOPD.

Sl. No.	Name of the crop with various components	Quantity of seeds to be required (qtls)	Rate/ Ha. (Rs.)	Amount (Rs. In lakh)	Area proposed to be covered (ha.)	Nos. of farmers to be benefitted
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Mustard with micronutrients (Borax) and Pesticides	4000 qtls.	15215.00	608.60	40000	80000
2	Pea Seeds	1000 qtls.	2685.00	53.70	2000	14285
3	Black gram					
4	Green gram	200 qtls.	2475.00	22.00	889	5000
5	Summer Paddy with NPK fertilizer mixture (15:15:15)	9000 qtls.	3536.00	795.60	22500	75000
6	Assorted vegetables packets					
	Total:			**2000.00**	**65389**	**174285**

Proposal of different departmental schemes showing financial requirements proposed to be implemented during Rabi, 2019-20

S. No.	Name of Schemes	Crop	Area (Ha)	Nos. Of beneficiaries	Quantity (Qtl.)	Fund allotment (Rs. In lakh)
1	*2*	*3*	*4*	*5*	*6*	
1	RKVY	i. Paddy	15500	38750	6200	1887.00
		ii. Mustard	20060	50150	2006	
		iii. Black Gram	20000	50000	4500	400.00
2	BGREI	Paddy	121700	243400	25930	7650.00
3	NAEP	i. Paddy (HYV)	59600	193500	23840	7507.125
		ii. Maize	6000	22500	1350	
		iii. Mustard	45000	145000	4500	
		iv. Black Gram/ Green gram	12360	40500	2781	
		v. Pea	7267	36500	3851	
		vi. Lentil	8000	29500	2400	
		vii. Potato	1500	11250	33750	
4	NFSM Rice	Paddy	64295	137806	25718	128.592
5	NFSM Pulse	i. Black Gram/ Green Gram/ Pea/Lentil etc.	22820	58000	5134	61.608
	Total:		**404102**	**1056856**		**17634.325**

Chapter 5

Response Plan

Directorate of Agriculture

The monsoon activity plays an important role in Crop production in the. Thus everyday rainfall is recorded at the block headquarters and evaluated for impact on crop stand. Natural disasters are closely watched, especially during Kharif season, since 2/3rd of the crops are grown rain fed. Weekly crop weather watch reports will be generated on-line and transmitted by each district to the Control Room at the Directorate. The Control room will function every day from 9 AM to 8 PM and such incoming reports are monitored. Regular monitoring of crop weather reports at least once every week at the state level gives a first-hand indication of occurrence of natural calamities. However, in case of flash floods/ cyclones/ hailstorms etc. the entire reporting system is activated almost immediately and first hand (eye estimate) reports of damage generated within 24 hours. Basing on the reports from the respective districts the response mechanism as regards technical support, agri-input supply, pest and disease outbreak measures are kept in readiness. The ameliorator measures start as soon as possible after the extent of damage is assessed in real time basis. The extension functionaries at the grass root level take a note of the damages and report them almost every day during such an emergency.

Appointment of Nodal Officers:

Level	Nodal Officer (S)
State	Prafulla Mahanta, DDA (IPM)
	JDA (Pulse)- Control Room In charge
District	District Agricultural Officer
Circle	Agricultural Development Officer

**Data Source: Directorate of Agriculture

Accordingly the DM Plan/ Contingent Plan is and would be updated by the Wing of the directorate dealing with the Disaster/IRT with the technical help of the Assam Agricultural University, Jorhat, CRRI, Gerua & ICAR Institute (Plantation Crops).

Level	Who	When	How
Agriculture/Horticulture			
State	Director of Agriculture/ Director of Horticulture & FP, Assam	Pre Kharif Pre Rabi	State Level Meeting with IRT and experts From AAU/CRRI/CIPMC Workshop to be organized Analysis of Data base and MIS
District	District Agril. Officer	Pre Kharif Pre Rabi	District level meeting with IRT and experts from KVK/experts from line departments, NGOs etc. Preparedness meetings Review and analysis of past Experiences
Circle Level	ADO	Pre Kharif Pre Rabi	Group discussions/meetings with farmers/PRI members etc. Collection of feed backs and suggesting for improvement to address the local needs.

**Data Source: Directorate of Agriculture

Incident Response Teams (IRT) will be formed and function at different levels which shall be in coordination for implementation of disaster related plans

Level	Name of the Head of the IRT	Team Member of IRT	Role/Responsibility
State	**Director of Agriculture Assam**	• ADA(Extension) • ADA(Input) • JDA(Pulse)- Member Convener • JDA(Extension) • CE(Agri) • DDA(IPM) Nodal	• Coordinate with State Govt. and other line Deptt. • Ensure Reporting of

		cum Member Convener • JDA(Stat) • Sr FAO	the affected area and assess damage thereof • Assess the staff and other logistic requirement for operation • Ensure availability of funds at District and block level to meet contingency expenses • Plan and arrange necessary inputs for response measures • Manage the fund and maintain financial records • Maintain an inventory of all related guidelines, procedures action plans, district maps and contact numbers • Develop the media messages up to date status of disaster mitigation and response work • Document the lessons learnt

			• Circulate printing material on contingent and DM plans • Capacity Building
District	**District Agril Officer**	• Asstt. Directors of Agriculture • Sr ADO(Agro) • Sr ADO(Agro) • Sr ADO (PP) • EE/AEE • Scientist KVK/other ICAR institution • Head Clark(as representative for Accounts)	• To coordinate with Directorate District Authorities and line Deptt. At District level • To prepare and activate district disaster plan • To manage the overall response activities in the field • To develop the media messages • To mobilize resources for response measures • To collect and store disaster related information for post incident analysis • Capacity Building
Sub Divisional Level	**Sub Divisional Agril Officer**	• ADOs • BTM • 2 Nos. Ai/VLEW • Revenue representative	• To supervise collection of disaster related information

		• Others(PPS)	and report to the District IRT • To prepare and activate disaster plan at block level • To coordinate with District Authority, Circle Officer/BDO, PRI members etc. • To implement the plan • To ensure availability of resources for response measures • Capacity Building

**Data Source: Directorate of Agriculture

Chapter 6:

Relief, Rehabilitation and Reconstruction

Input assistance extended as per SDRF Norms of the Central Government & Ex-gratia by State Govt.

1	**Assistance farmers having landholding up to 2ha.**	
A.	**Assistance for land and other loss**	
	a) De-silting of agricultural land (where thickness of sand/silt deposit is more than 3, to be certified by the competent authority of the State Govt. b) Removal of debris on agricultural land in hilly areas c) De-silting/ restoration/ repair of fish farms	**Rs. 12,200/-** per hectare for each item (Subject to the condition that no other assistance/subsidy has been availed of by/is eligible to the beneficiary under any other Govt. scheme)
	d) Loss of substantial portion of land caused by landslide, avalanche, change of course of rivers	**Rs. 37.500/-** per hectare to only those small and marginal farmers whose ownership of the land is legitimate as per the revenue records
B.	**Input subsidy (where crop loss is 33% and above**	
	a) For agriculture crops, horticulture crops and annual plantation crops.	**Rs 6800/per ha.** in rainfed areas and restricted to sown areas. **Rs 13,500/- per ha**. in assured irrigated areas, subject to

		minimum assistance4 not less than **Rs 1000** and restricted to sown areas
	b) Perennial crops	**Rs. 18000/- per ha**. For all types perennial crops subject to minimum assistance not less than **Rs. 2000/-** and restricted to sown areas
	c) Sericulture	**Rs. 4,800/-** per ha. for Eri Mulberry, Tussar **Rs. 6000/-** per ha. for Muga
2.	**Input subsidy to farmers having more than 2 ha. of landholding**	**Rs. 6800/-** per hectare in rainfed areas and restricted to sown areas **Rs. 13,500/-** per hectare for areas under assured irrigation and restricted to sown areas **Rs. 18,000/-** per hectare for all perennial crops and restricted to sown areas Assistance may be provided where crop loss is 33% and above, subject to a ceiling of 2 ha. per farmers.

Chapter: 7

Citizen's Engagement of the Agriculture Department

The Department is known as "The Agriculture Department" and is located at Assam (Civil) Secretariat, Block – E, First Floor, Dispur, Guwahati – 6.

It operates from the Assam (Civil) Secretariat, Dispur for the entire State of Assam through the establishment of Directorate of Agriculture and Directorate of Horticulture & Food Processing with the officials at village, Sub-divisional and District levels.

This document represents a systematic effort to focus on the commitment of the Agriculture Department towards its citizens / clients in respect of delivery of services and information, choice and consultation, non-discrimination and accessibility, grievance redressal, courtesy and value for time and money. This also includes expectation of the organization from citizens / clients for filling the commitment of the organization.

The Citizen Charter is prepared and uploaded in order to help the citizen's to be aware of the services and schemes available and to avail them on time to increase the production and productivity. This is utmost important to help uplift the living standards of the people by way of participation in the processes of the Government.

Mandate:

The mandate of the Department is the development in agriculture sector / horticulture sector by harnessing latest technologies, support education and research, proper administration of its wings, timely sanction of the various state plan schemes / central sector & centrally sponsored schemes and monitoring their implementation.

Vision:

To provide food and nutritional security to the people of Assam and also to make Agriculture profitable and attractive enterprise with sustainability.

Mission:

To increase production and productivity of agri-horticultural crops using environment friendly science and technology while ensuring increased net farm income to the farmers through various schemes, programmes and welfare measures.

Details of business transacted by the Department.

The Department of Agriculture works through its agencies like the Directorate of Agriculture and its subsidiaries, Directorate of Horticulture and FP and the Assam Agricultural University and its affiliates.

Details of Citizen's and clients:

- The Directorate of Agriculture.
- The Directorate of Horticulture and Food Processing
- The Assam State Agricultural Marketing Board
- The Assam Seed Certification Agency
- The Assam Agriculture University

Representation of Public for consultation / formulation of policy administration of the Department:

Citizens may consult for feedback on schemes related to the department with various committees at the Directorates and other organizations listed below;

1. **Directorate of the Department**

- The Directorate of Agriculture, Assam (agri-dept@nic.in)

- The Directorate of Horticulture & Food Processing, Assam. (directorhortiassam@gmail.com)

2. **Boards, Councils, Committees, Corporation etc. of the Department:**

- The Assam State Agricultural Marketing Board. (assam.samb@gmail.com)
- The Assam Seed Corporation Ltd.
- The Board of Management of Assam Agriculture University.
- The Assam Agro. Industries Development Corporation Ltd. (Already closed)
- The Assam State Seeds Certification Agency.
- Various State Level, District Level and Block Level Committees constituted under Agriculture Department.
- The meeting of those Boards, Corporation and Committees are open to the members only. There is no bar to make the Minutes of its meetings accessible for public.

Expectation from citizens and clients:

In order to provide time bound and effective service the citizens are also expected to render their positive support to the Department by way of behaving responsibly and in a manner suited for availing the services as listed above. For example the documents required for any sanction of scheme should be submitted along with proposals.

The Agriculture Department is committed to provide the best of services to its citizen's and client's as per professed goals and keep on improving based on feedback on our website www.agriculturedepartmentassam@gmail.com. As the Citizen's Charter is not a one time job and it requires constant review therefore it will be reviewed annually. Any suggestion / views may be submitted to Shri Rajesh Prasad, IAS, Principal Secretary& APC to Govt. of Assam, Agriculture Department, C-Block, Third Floor, Assam Secretariat, Dispur, Guwahati -06.

Community Participation in Disaster Response:

A number of community based organizations like NGOs, Self Help Groups (SHGs), Youth Organizations, VLEW etc., normally volunteer their services in the aftermath of any disaster.

- Each VLEW shall be in charge of 8 Elekas, each comprising of 8 to 10 villages basing on the farm house holds.
- Select progressive farmers for each unit from different socio-economic group of farmers including farm women with due importance to SC/ ST under the guidance of ADO
- Attend the Bi Weekly & review meetings. In the Bi-weekly training, he shall transmit the feedback on technology messages, input requirements and progress of achievements on the targets given for crop production, input management including farm credit and others.
- His goal is to raise the productivity in every farm land keeping harmony with the Environment and protection of soil, water and other natural resources. He should make a whole-hearted effort in delivering the sustainable Agricultural Technology.

- To study agricultural activities of his eleka and acquaint him with different farming
- Situations and make a bench mark survey of the category of farmers. Land utilization,
- area, production and productivity statistics, type of cropping pattern followed, crop
- Varieties grown, rainfall, irrigation facilities and input supply arrangements etc. and keep the data in his Basic information register and transmit a copy of the same to the ADO. The basic information so collected will be updated time to time.
- To monitor for increasing production and productivity of crops of his circle maintaining the base records for comparison.
- To conduct/ organize & supervise demonstration, minikit, seed village programme,
- diversified cropping programme, introduction of new crops/ varieties and other special
- Programmes along with group discussion.
- To prepare situation specific crop production plan for each farmer and for each and assess their requirement of inputs in a realistic manner.
- To advise/ prepare the long term action plan for increasing seed replacement ratio, level of fertilizer consumption, use of bio-fertilizers, and use of improved farm.
- Implements and machinery, increasing irrigation potential through dug wells, deep/shallow tube wells, etc.
- To utilize the quantum of subsidy on seeds, fertilizers, bio-fertilizers, implements, power, machineries, sprinklers etc. as per the target fixed by the ADO.
- To encourage/ promote purchase and use of quality seeds by the farmers.
- To maintain and carry a record of the events of work done by him during his field visit & shall also record the observations & problems of farmers including feedback separately in registers.

- The registers will be checked by ADO and his controlling officer regularly along with other senior officials. He shall produce these registers to the inspecting authorities as and when required.
- To assess the requirement of different inputs in consultation with interested farmer groups.
- Promote the use of modern agriculture machineries, implements and Equipments and creation of irrigation potentiality through Shallow Tube wells, Medium tube wells, Bore wells and Dug wells etc. in his circle. He should also collect applications form eligible farmers.
- Attend/ conduct all types of Crop Cuttings.
- To conduct pest surveillance work, prepare surveillance form and submit to ADO.
- To collect soil samples as per the target fixed and promote the soil testing among the farmers
- Keep record of it to follow up the recommendation in farmers' field.
- To promote organic farming in his area.
- To report immediately about the happenings of any natural calamity, adverse weather and crop situation to the ADO.
- To help in administer of Calamity Relief Fund subsidy to the affected households/Beneficiaries as and when assigned by higher officials.
- Actively involve himself in National Food Security Mission/ Government schemes and programmes and other key activities.
- To maintain effective coordination with the officials of allied sectors like Panchayat Raj, Water Resources, Cooperation, and Commercial Banks and take their
- Assistance to solve farmer's problems and in case of any problem he shall bring to the notice of the ADO.

•He should never stop striving to achieve higher and higher percentage of success in his goal of crop productivity, input use, adoption of skills and practices by the farmers, farm women and youths with ultimate aim of building self-confidence within and without and more economic returns to the farming community of his circle.

• To motivate the farmers/farm women for constituting Self Help Groups and ATMA activities.

• Besides the above he shall perform any other job as and when assigned by the higher Authorities.

• These organizations are placed in the Operations Section where the skills and services of the community may be utilized systematically in the form of Single Resource, Strike Team and Task Force. The Community Based Disaster Management Teams should be appropriately integrated in the State and District level IRTs. The Responsible Officers (ROs) of the State and District will ensure that such resources at village, ward or Gram Panchayat levels are organized with the help of leadership of PRIs and other community leaders. Their resources should be identified as per hazard and they should be encouraged and trained to be a part of the Response Teams.

Why should the community be at the heart of any disaster management initiative?

- **First Responder: -** Since the community is at the site of the disaster, it is the first one to respond to it.
- **Source of maximum information:-**When a disaster occurs in an area, no one will have better or more comprehensive and "up to date" information on the people living there and its resources than the inhabitants of that area.
- **Local coping mechanism: -** Most disasters are recurrent; hence there is always a traditionally established coping mechanism that is handed down over the generations. This would ideally be the most immediate response measure for the local environment though it could be improved through technical backing.
- **Self-help in the self-interest:-**It would be the natural instinct of community to respond quickly on such occasions since over dependence on external resources may be time-consuming and even ineffective.

Benefit of citizen engagement:

- Making Legitimate Decisions.
- Making better policy
- Looking for common ground.
- Building competent, Responsible Citizens.

There is a wide network of VLEW and voluntary agencies in the State. Regular meetings will be held at more frequent intervals to face any untoward incident. Such coordination meetings can be held at district level under the chairmanship of Deputy Commissioner. The role of the voluntary agencies and the VLEWs which operate at the grass root level is crucial. Such organizations can be helpful in motivating and mobilizing community participation for ensuring any disasters with the local population and flexibility in procedural matter. Some NGOs are already active in conducting meeting related with agriculture.

Chapter 8

Knowledge Management

Need of creating network of knowledge institutions

There is a urgent need felt for creating such knowledge institutions especially owing to the increased frequency of aberrant weather conditions in the offing due to impacts of climate change. The problems need to be addressed in a very professional manner. The farmers of our state mostly (82%) belong to small and marginal category and thus are very vulnerable to impacts of natural disasters. Ours being an agrarian economy the plight of the farmers need to be addressed adequately and appropriately. This necessitates proper documentation and free flow of the entire chain of events before and aftermath of natural disasters.

The Directorate of Agriculture has a printing press manned by personnel for media management who are constantly on the process of disseminating farmer centric information, gathered from experts of the department and scientists of AAU, through various mass media like, leaflets, posters, booklets, tailored TV and radio programmes etc. Department website i.e. www.rkvyassam.in will be updated with disaster related plans, procedures, circulars, guidelines, documents, best practices, reports, trained human resources.

Identification of Knowledge institutions and mechanism of knowledge sharing:

The Assam Agriculture University provides the blue print of the contingent measures to be taken up in cases of such natural disasters and the booklet is circulated among field functionaries for making them aware of the technical support they are needed to render. Besides, ICAR institutions like, Central Rice Research Institute, Gerua; CIPMC Guwahati; etc. can be of immense help. The KVKs can be taken advantage of, on a regional basis for such knowledge sharing purpose. Capacity building exercises need to be organized in sufficient numbers on Disaster Management for all the stake holders (govt. functionaries, Farmers, Input dealers, Farmers representatives, VLEW etc.) Development of web portal for knowledge management will be a priority. Knowledge sharing will be done through electronic media, personal contact and discussion in seminars/workshops.

Documentation of lessons learnt:

Such statistics of area affected, extent of damage, input subsidy extended, different measures taken etc. are all recorded for future guidance. Pertinent information will be hoisted in the websites of respective directorates and circulated in the vulnerable areas. However all these along with a critical analysis of the same could help us to locate gaps and be ready appropriately to plan for such eventualities.

Documentation of best practices and uploading of the same in the departmental websites:

The Contingent Plan and best practices shared with ASDMA for linking them into website.

Annexure I

Road Map of Agriculture Department

Disaster Risk Reduction (DRR) continues to be an evolving field. As disaster risks evolve, and DRR practitioners undergo cycles of learning and reflection, different concepts take prominence to understand and act on disaster risk reduction. This section provides a glossary of how terms are understood and used by this Roadmap.

Disaster: The Disaster Management Act 2005 defines disaster as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or human-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, to damage to, and degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area".

Disaster affected persons: Disaster affected persons are defined as those who have experienced either or all of the following due to disaster events -

- Suffered injury, illness or trauma,
- Have lost members of family and / or livestock,
- Damage to house,
- Economic loss {for e.g. Damage to property, agriculture (crop, seeds, inputs, land, stored harvest), animal husbandry (livestock-cattle, goats, poultry, sheds and related inputs), fishery, employment (daily-wage labour, sharecropping), and enterprises (small producers and vendors, cottage industries, small, medium and large industries), and
- Access to basic services (like water, sanitation, health, food and nutrition, education, and protection) is disrupted.

Disaster Management: continuous and integrated process of planning, organizing, coordinating, and implementing measures which are necessary or expedient for dealing with disasters once they are imminent or have occurred, including:

- Preparedness to deal with any disaster
- Prompt response to any disaster, including assessing the severity of situation
- Evacuation, rescue and relief
- Rehabilitation and reconstruction

Disaster Risk Reduction: the policy objective of anticipating future disaster risk, reducing existing exposure, vulnerability or hazard, and strengthening resilience.

	Specific Actions	Supportive Departments/ Agencies	Implementation Level (State/ District/Sub Divisional/ Block/	Short Term	Medium Term	Long Term
1	Promotion of horticulture activities in line with theKrishi Road Map of the State	Environment and Forest Deptt.				
2.	Undertake R & D activities to develop waterresistant seeds and plants for flood prone districts, and, develop seeds and plants for water deficient areas.	Assam Agriculture University & KVKs				
3.	Undertake analysis of the disaster risks to certain existing and potential livelihood clusters like Muga, eri, vegetable, dairy, fishery, poultry and such within Assam with participation of community level stakeholders including especially at risk communities. Develop reports of risk analyses including suggested measures to enhance resilience in these livelihood clusters	Related Boards, Mission and Corporations, Panchayati Raj Institutions (PRIs), Urban local bodies (ULBs), Private Sector and Central Statistics Office (CSO)	State and Districts			
4.	**Research and Promotion of hazard and climate change resilient agriculture** (crop varieties and cultivation techniques) through following actions:	Assam Agriculture University, ATMA, KVKs, PRIs, Farmers Producer Groups, media houses and CSOs.	State, District and Block			

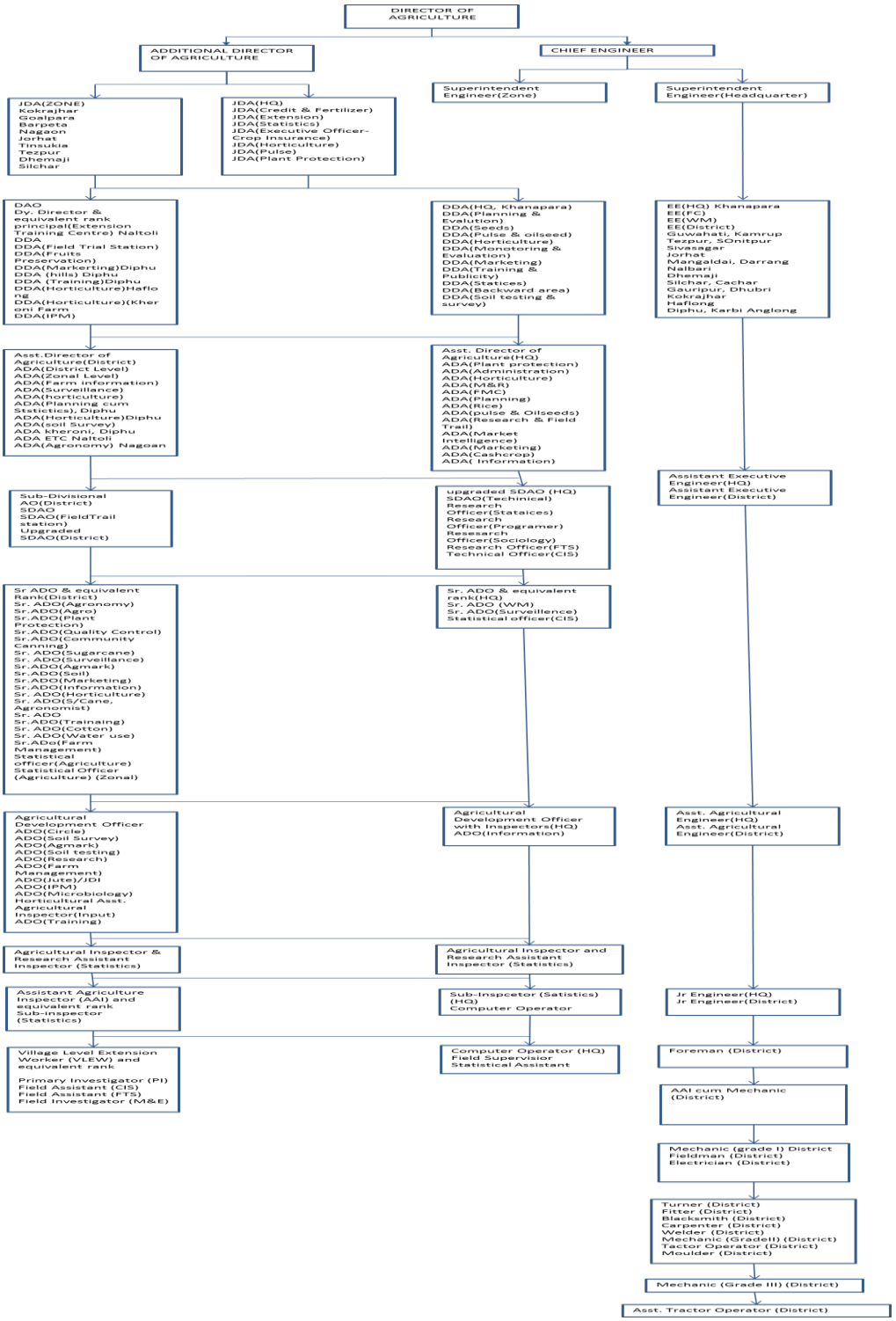
	1. Develop short duration/ stress resilent seed varieties taking into consideration the disaster and climate change induced risks (flood, drought, erratic / unseasonal rainfall and Hailstorms). 2. Undertake widespread promotion and distribution of these short duration / stress resilient seed varities in all districts. 3. Establish mechanisms to take on board "Progressive Farmers" from the state for extension of hazard and climate change resilient agriculture. 4. Set up 'Field School' for various primary sector related demonstration of innovations and extension training (Agriculture, Dairy, Fishery, Poultry, Horticulture and Livestock). 5. Strenghthen ATMA and Krishi Vigyan Kendras (KVK)					

	to undertake extension of successful flood resilient cropping techniques in all districts respectively. 6. Develop research and extension releated plans with ATMA and KVK to integrate hazard climate change resilient agriculture in their routine functioning. 7. Widespread dissemination of research and development through publications like booklets, pamphlets, postersetc.					
5.	Ensure timely provision of inputs and extension services for high flood prone districts as to reduce the impact of flood and as well for drought.	Assam Agriculture University				
6.	Monitor construction of warehouses for storage of Agricultural produce as per Agricultural Road Map.	Building and Construction, Private Sector and CSOs.	Block Level			
	Promote establishment of cold storages as Agriculture Road Map. Promote setting up of processing plants for varied primary					

	produce by supporting producer's organizations.					
7.	Provision of agriculture implements and artisan/ trade specific tools and equipment as part of recovery measures.	DDMAs, PRIs	District and Block			
8.	Modify the planning procedure guidelines/ directives to include disaster and climate risk analysis as a mandatory step in the development of annual plans of department.	Transformation and Development Department	State			

Organizational Set-Up Statement showing departmental structure for Agriculture & Engineering Division

Annexure II

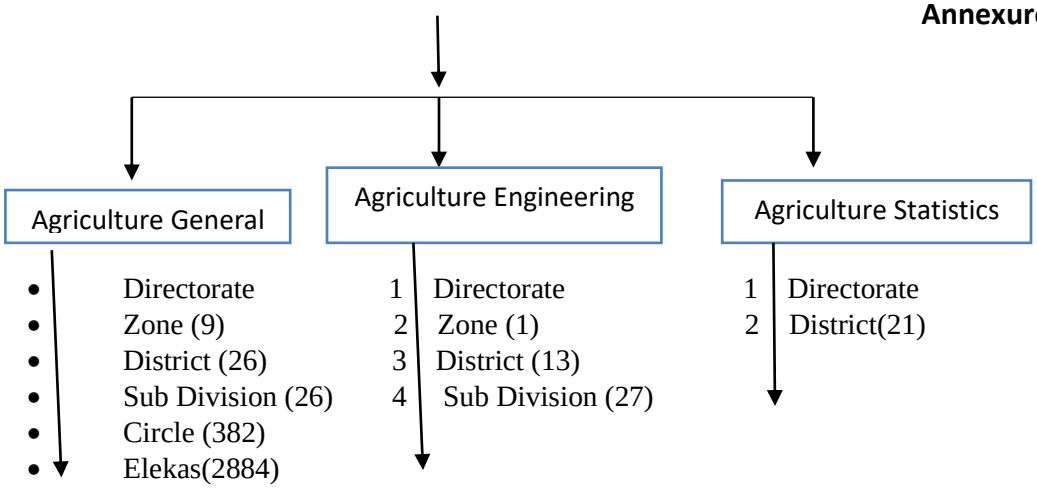


**Data Source: Directorate of Agriculture

Department of Agriculture, Assam

Directorate of Agriculture

Annexure III



Level:

Laboratory:

1. Soil Survey(1): Ulubari, Guwahati
2. Pesticides Quality Control(1): Ulubari, Guwahati
3. Fertilizer Quality Control(1): Ulubari, Guwahati
4. Bio Control(1): Ulubari, Guwahati
5. Soil testing(8): Kokrajhar, Ulubari, Sonitpur, Lakhimpur, Jorhat, Dihpu, Dima Hasao, Silchar
6. AGMARK(5): Ulubari, Nagaon, Tezpur, Dibrugarh, Silchar

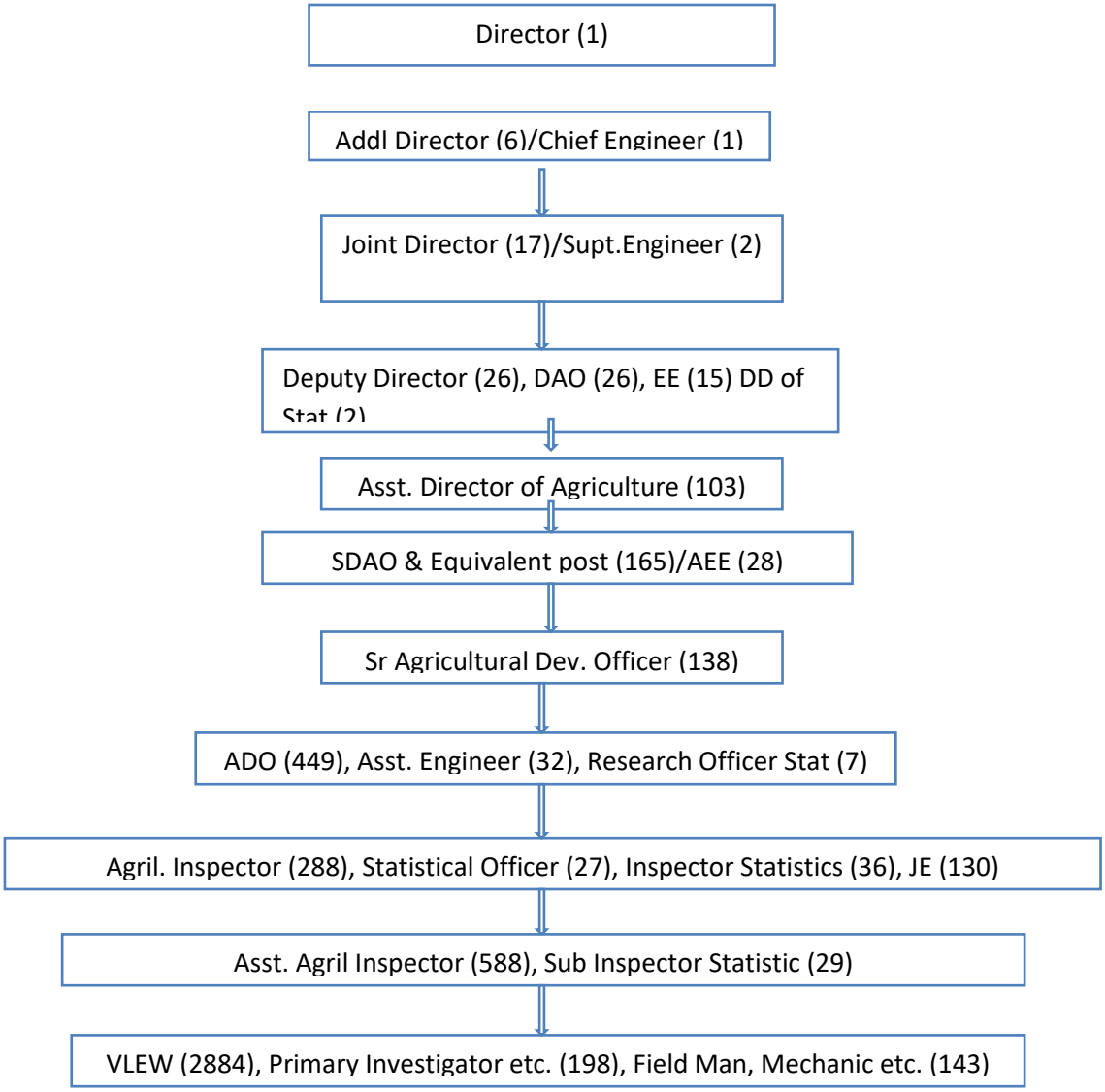
Extension Training Centre: 1Nos (Naltoli, Nagaon)

Field Trial Station: 10Nos. (Balagaon, Balijana, Paatbousi, Khetri, Shillongani, Panbari, Gelapukhuri, Suklavoria, Chariduar, Mahakal)

**Data Source: Directorate of Agriculture

Annexure IV

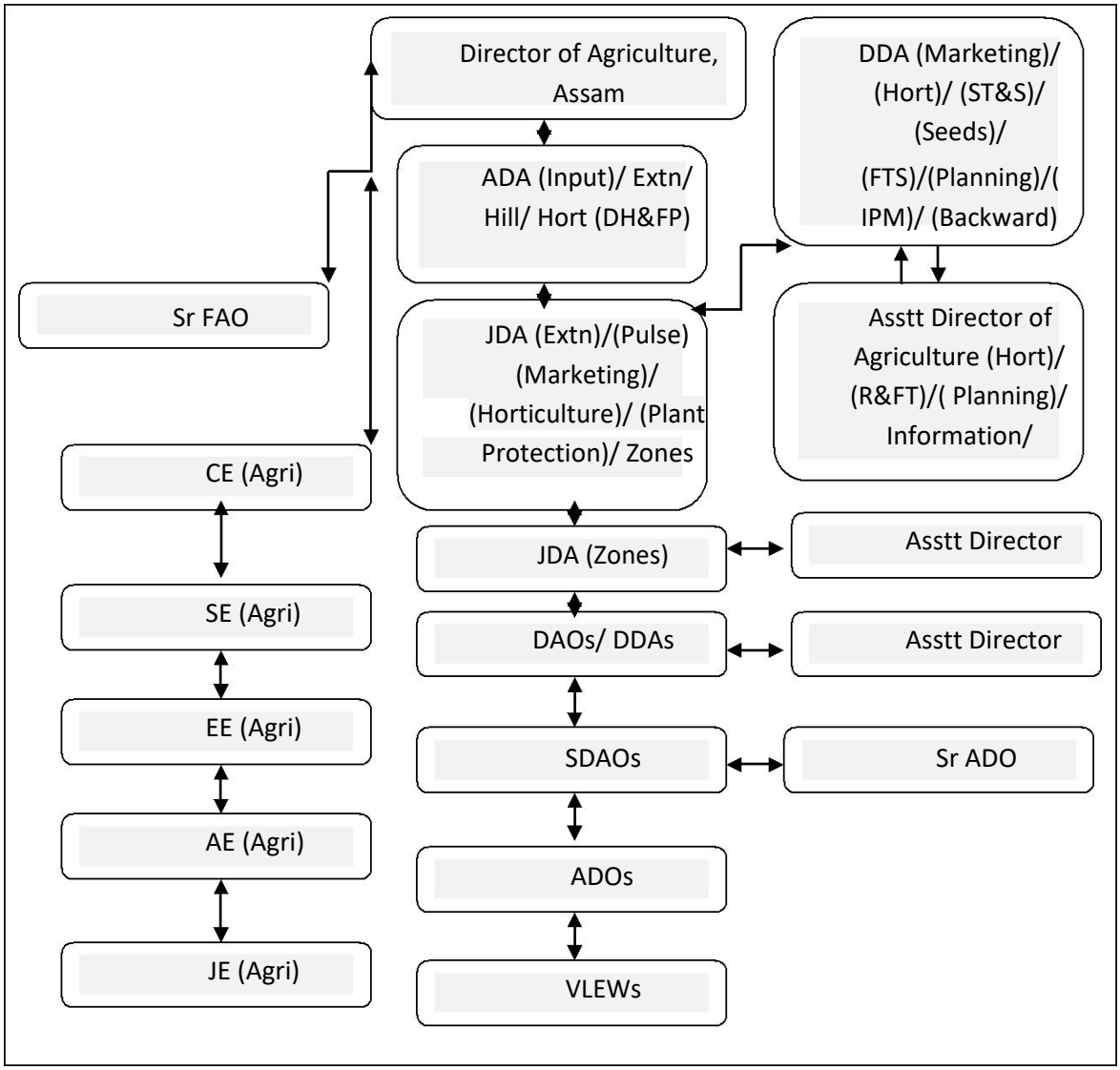
Hierarchy of Agriculture Department
(Figures in bracket indicate number of post)



**Data Source: Directorate of Agriculture

Annexure: V

Organization Setup of Directorate of Agriculture



**Data Source: Directorate of Agriculture

Annexure: VI

ORGANISATIONAL SET UP

Directorate of Agriculture

The Directorate is headed by Director of Agriculture, Assam with headquarters at Guwahati (Khanapara, Guwahati-22). Every district is headed by a District Agricultural Officer with supporting agriculture extension functionaries at different stratum.

Table: Staff Strength under Agriculture Extension set up:

Serial No:	Name of the Post	Sanctioned Strength
1	Director of Agriculture	1 No
2	Addl. Director of Agriculture	05 Nos
3	Chief Engineer(Agriculture)	01 No
4	Joint Director of Agriculture	16Nos
5	District Agricultural Officer	32Nos
6	Dy. Director of Agriculture	26 Nos
7	Superintending Engineer	01 Nos
8	Sr. Finance & Account Officer	01 No
9	Dy. Examiner	01 No
10	Administrative Officer	01 No
11	Registrar	02 Nos
12	Assistant Director of Agriculture	103 Nos
13	Sub Divisional Agricultural Officer	165 Nos
14	Executive Engineer (Agriculture)	15 Nos
15	Asst. Executive Engineer (Agriculture)	28 Nos
16	Asst. Agril. Engineer	32 Nos
17	Sr. Agril. Development Officer	138 Nos
18	Agril. Development Officer	449 Nos
19	Jr. Engineer	130 Nos
20	Programmer	01 No
21	Research Officer	7
22	Agril. Inspector	242
23	Superintendent	7
24	Asst. Agril. Inspector	565
25	Agril. Extension Assistant(VLEW)	2884
26	Statistical Officer (Agriculture)	27
27	Inspector of Statistic(Agri)	36
28	Sr. Assistant (H.Q.)	60
29	Stenographer	11
30	Jr. Assistant (H.Q.)	71
31	Jr. Assistant (Dist.) (Excluding 6th	410

	Schedule)	
32	Steno Typist	7
33	Sr. Grade Typist	1
34	Project Operator	7
35	Sub- Inspector of Statistics (Agri)	29
36	PI/FI	149
37	F.A. (CIS)	50
38	Mech. Jute	10
39	Forman	39
40	AAI-Cum-Mechanic	17
41	Mech. Gr.I	39
42	Mech. Gr.II	39
43	Fieldman	40
44	Mech. Gr.III	6
45	Blacksmith	12
46	Turner	12
47	Fitter	16
48	Electrician	6
49	Welder	17
50	Carpenter	6
51	Draftsman	2
52	Operator	3
53	Asstt. Operator	4
54	Tractor Operator	210
55	Driver (H.Q.)	41
56	Driver (Excluding 6th Schedule)	179
57	Asstt. Tractor Operator	155
58	Grade-IV(H.Q.)	67
59	Grade-IV (Dist.)	759 **(as per DAO/JDA Report)
60	Sr. Asstt. (Dist.)	238

**Data Source: Directorate of Agriculture

Annexure: VII

Details of infrastructure available with the department:

Table: Infrastructure available with Agriculture Directorate

Sl No	Particulars of Infrastructure	Description	Remarks
1.	JDA – Office	12 Nos.	
2	DAO- Office	26 Nos.	
3	DDA- Office	11 Nos.	
4	Asstt Director of Agriculture (Inf)	1 No.	Has a printing press and personnel for media coverage
5	EE/AAE – Office	13+28	
6	SDAO- Office	55 Nos.	
7	BRC FIAC- Office	118+91 Nos.	
8	Departmental Farms	48 Nos.	
I	Godown	42 Nos.	At Dist level
II	Seed Processing Plant	8	At Dist level
III	Farm Equipments	Thresher- 1 No, Pumpset- 4 Nos	
IV	Farm Office & Staff Quarter	135 Nos.	Needs of immediate repairing
V	Live stocks	Nil	

VI	Threshing Floor	38 Nos.	
VII	Boundary Wall	20 Nos	
	Soil, Seed, Fertilizer & Pesticides	Soil- 10 Nos., Fertz-	
9	testing laboratories	1 No., Pesticides- 1 No.	
10	FTS	9 Nos	A State Level- 3 Nos Dist Level- 9 Nos
11	Biocontrol laboratories	1 No.,	A State Level
12	State Training Centre	ETC, Naltoli	
13	Plant Protection Equipments	--	Available at District and Sub Div level
14	Govt Vehicles	246 Nos	
15	Staff Quarters	230 Nos	
16	Others		

**Data Source: Directorate of Agriculture

Annexure: VIII

Horticulture:

The Directorate has the following institutions for the development of Horticultural sector in the state.

Sl No.	Particulars of Infrastructure	Description	Remarks
1	Directorate - Office	1 No	
2	Departmental Farms with area	20 Nos with 115.66 Ha	
3	COE	3 Nos.	
4	V- Type Nurseries	1 No. (Ulubari, Ghy)	
5	Live stocks	--	
6	Cultivated land	90 Ha	
7	Boundary Wall	--	
8	Govt Vehicles	2 Nos.	

**Data Source: Directorate of Agriculture

Area, Production and Productivity of major crops in Assam

Annexure: IX

Agricultural Crop:

(Area in Lakh Ha, Production in lakh MT, Productivity in kg/ha)

Sl No	Name of Crop		End of the 10th Plan(2006-07)	End of the 10th Plan(2007-12)	Year wise					
					2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1	Total Rice	Area	21.9	25.46	24.88	25.03	25.73	24.85	25.13	2079594
		Production	29.16	50.45	51.29	51.93	54.4	51.25	53.71	4129459
		Productivity	1349	1986	2090	2101	2140	2062	2137	1986
2	Wheat	Area	0.6	0.4	0.34	0.5	0.55	0.21	0.25	20515
		Production	0.67	0.49	0.44	0.5	0.8	0.34	0.41	33645
		Productivity	1132	1209	1300	1460	1480	1633	1640	1640
3	Maize & other Cereals	Area	0.19	0.21	0.28	0.6	0.7	0.35	0.37	31646
		Production	0.14	0.17	0.23	1.2	1.57	0.92	1.07	105698
		Productivity	744725	802	821	1020	1020	1628	2891	3340
4	Total Pulses	Area	1.14	1.33	1.41	1.5	1.74	1.42	1.85	18741
		Production	0.62	0.76	0.84	1.04	1.25	1.07	1.45	16867
		Productivity	542	579	598	695	710	751	784	900
5	Total Food Grain	Area	23.9	27.44	26.92	27.14	28.17	26.83	27.6	2729022
		Production	30.63	51.89	52.81	54.18	57.22	53.58	56.63	5643758
		Productivity	1298	1914	1962	2020	2055	1997	2051	2068
6	Total Oilseed	Area	2.76	2.76	3.06	3.05	3.37	3.1	3.63	354943
		Production	1.37	1.56	1.87	1.86	2.2	2.15	2.58	255388
		Productivity	497	565	610	611	628	694	711	720
7	S/Cane	Area	0.27	0.28	0.29	0.29	0.32	0.29	0.33	31698
		Production	10.55	10.53	10.28	10.75	11.95	10.38	12.55	1220373
		Productivity	39634	37055	35612	36969	37340	35246	38100	38500
8	Jute	Area	0.58	0.66	0.65	0.7	0.72	0.72	0.81	76642
		Production	1.01	6.08	1	1.29	1.35	1.55	1.84	1014229
		Productivity	1744	1669	1543	1849	1870	2161	22.55	2382

Horticultural Crop:

Annexure: X

(Area in Lakh Ha, Production in lakh MT, Productivity in kg/ha)

CROPS	2019-20 Estimated			2014-15			2015-16			2016-17 (Estimated)			2017-18 Estimated		
	Area	Production	AV.yeild	Area	Production	AV. yeild	Area	Production	AV. yeild	Area	Production	AV.yeild	Area	Production	AV. Yield
Fruit crops	167718	2540653	15148	144172	2012022	13869	144328	2056169	14246	162222	2372069	14622	162882	2414054	14820
Tuber crops	125404	1243264	9914	114035	846716	7425	112425	752480	6693	120574	1156266	9589	121730	1170367	4694
Spices crops	127264	591996	4652	108240	297570	2749	108659	357804	3293	123670	547307	4425	124209	601292	4841
Vegetables	289620	5499149	18987	277950	5011603	18030	279750	5163238	18457	288136	5416877	18799	288294	5423530	18812
Nut crops															
1. Area Nut	3759	5168	1375	68038	56994	126	66739	73870	143	80756	77797	201	80809	80809	202
2. Coco Nut	25137	174896	69	21141	146786	53	20340	137736	52	24714	171878	108	24766	172304	109
Flo				3000	20000		505	33546		515	3435		5173	3454	8715

wers					MT 5000 Lakh Nos		0	MT 8400 Lakh Nos		1	1 MT 8619 lakh Nos			7	
M/A plants							4398	168 MT Dry weight		4486	172 MT Dry weight		N/A	N/A	N/A

**Data Source: Director of Horticulture & FP, Khanapara

Annexure: XI

Crop and Pest Attack

Table: Major incidences of pest/ disease attack in Assam

Year	Season	Crop	Pest	Pest attack area Ha	Major Dist.
2000-01	Kharif Rabi	Paddy	RH, Thrips, CW, SC, RB	3959 2517	Barpeta, Goalpara, Dhubri, Nagaon, Morigaon, Nalbari, Kamrup, Darrang, Golaghat, Tinsukia, Cachar, Hailakandi, Kokrajhar, Udalguri, Bongaigaon, Karimganj
2001-02	Kharif Rabi	Paddy	RH, Thrips, CW, SW, RB	4912 3100	Dhubri, Nagaon, Morigaon, Nalbari, Kamrup, Darrang, Golaghat, Tinsukia, Cachar, Hailakandi, Kokrajhar, Udalguri, Bongaigaon, Karimganj
2002-03	Kharif Rabi	Paddy	RH, SC, RB	2016 9 1500	Barpeta, Nalbari, Kamrup, Darrang, Cachar, Sonitpur
2003-04	Kharif Rabi	Paddy Brinjal	SC, CW, Wilt	3910 3160	Nalbari, Kamrup, Darrang, Cachar, Sonitpur
2004-05	Kharif Rabi	Paddy Brinjal	SC, CW, Wilt	3890 2012	Kamrup, Darrang, Sonitpur, Dhubri, Barpeta, Goalpara
2005-06	Kharif Rabi	Paddy Potato	RB, Aphid, Blight	3551 2012	Kamrup, Darrang, Sonitpur, Dhubri, Barpeta, Goalpara
2006-07	Kharif Rabi	Paddy Potato	RB, Aphid, Blight	5912 3600	Darrang, Sonitpur, Dhubri, Barpeta, Goalpara

2007-08	Kharif Rabi	Paddy Potato	RB, Aphid, Blight	3912 2612	Kamrup, Darrang, Sonitpur, Dhubri, Barpeta, Goalpara
2008-09	Kharif Rabi	Paddy S/Cane	SC, RB, Hairy, Caterpillar, Red Rot	6000 5024	Barpeta Nalbari, Kamrup, Darrang, SonitpurLakhimpur, Dhemaji Cachar, Hailakandi, Udalguri,
2009-10	Kharif Rabi	Paddy S/Cane	SC, Thrips, RB, Hairy, Caterpillar, Red Rot	5980 4200	Nalbari, Kamrup, Darrang, Sonitpur Lakhimpur, Dhemaji Cachar, Hailakandi, Udalguri,
2010-11	Kharif Rabi	Paddy S/Cane	Thrips, RB, Hairy, Caterpillar, Red Rot	5200 3401	Nalbari, Kamrup, Darrang, Sonitpur Lakhimpur, Dhemaji Cachar,
2011-12	Kharif Rabi	Paddy S/Cane	SC, Thrips, RB, Hairy, Caterpillar, Red Rot	4920 2800	Nalbari, Kamrup, Darrang, DhubriKokrajharBongaigaon Udalguri,
2012-13	Kharif Rabi	Paddy S/Cane	SC, RB, Hairy, Caterpillar, Red Rot	3250 2110	Kamrup, Darrang, Dhubri Kokrajhar Bongaigaon Udalguri,
2013-14	Kharif Rabi	Paddy S/Cane	SC, Thrips, RB	3600 2712	Darrang, Dhubri Kokrajhar Bongaigaon Udalguri, Morigaon
2014-15	Kharif	Paddy Jute	RB, Hispa,	4740 10,37	Darrang, Lakhimpur, Sonitpur, Dhubri,

	Rabi	S/cane Oil Seeds Potato Pulse	Caterpillar, Aphid, Blight	0	Barpeta, Goalpara, Tinsukia
2015-16	Kharif Rabi	Paddy Jute	SC	0.21	Bongaigaon, Dhubri, Kokrajhar, Barpeta, Baska, Goalpara, Kamrup, Nagaon & Darrang
2016-17	Kharif Rabi	Paddy Mustard Potato vegetable	SC	0.41657(Kharif) 0.05(Rabi	Bongaigaon, Dhubri, Kokrajhar, Barpeta, Baska, Goalpara, Kamrup, Nagaon & Darrang
2017-18	Kharif Rabi	Paddy Mustard Potato vegetable	SC	0.26016(Kharif) 0.05(Rabi)	Bongaigaon, Dhubri, Kokrajhar, Barpeta, Baska, Goalpara, Kamrup, Nagaon & Darrang
2018-19	Kharif Rabi	Paddy Mustard Potato Vegetable	Swarming Catterpillar, Hispa, Rice Hispa, Leaf folder, Stram borer	7297.5(Kharif) 3663.1 (Rabi)	Hojai, Biswnath, Tinsukia, Baksha, Sibsagar, Kamrup, Hailakandi, Jorhat, Lakhimpur, Kokrajhar, Golaghat, Dhemaji

Annexure: XII

Pest Management:

Pest Management Rating of Commonly used Insecticides

Insecticide	Mammalian toxicity rating	Non-target toxicity rating				Environmental persistence rating	Overall Rating
		Fish	Bird	Bee	Average		
Azinphos-methy	14	3	2	4	3.0	3	10.0
B1	1	1	1	1	1.0	3.1	3.0
Carbaryl	2	1	1	4	2.0	2	6.0
Carbofuran	5	2	5	5	4.0	3	12.0
Carbophenothin	4	2	4	4	3.3	2	9.3
Chlorpyriphos	3	3	3	5	3.7	3	9.7
Cryolite	1	1	1	2	1.3	4	7.3
Demeton	5	2	5	2	3.0	2	10.0
Diazinon	3	2	5	4	3.7	3	9.7
Dicofol	2	1	2	1	1.3	4	7.3
Dischlorvos	-	Toxic	-	Toxic	-	-	-
Diflunenzuron	1	1	1	4	2.0	4	7.0
Dimethoate	3	1	4	5	3.3	2	8.3
Endosulfan		4	4	2	22.7	3	9.7
EPN	4	2	3	4	3.0	4	11.0
Ethion	3	2	3	-	-	2	7.0
Fenvalerate, permethrin	2	4	2	5	3.7	2	7.7
Malathion	2	2	1	4	2.3	1	5.3
Methomyl	4	4	3	4	3.7	2	9.7
Methoprene	1	1	1	2	1.3	2	4.3
Methoxychlor	1	3	2	1	2.0	2	5.0
Mevinphos	5	3	5	4	4.0	1	10.0
Naled	2	2	3	4	3.0	1	6.0
Ovex	1	2	1	1	1.3	4	6.3
Oxydemeton	3	2	4	2	2.7	2	7.7
Methyl	-	-	-	-	-	-	-
Phorate	5	4	5	2	3.7	3	11.7
Quinalphos	-	Safe	-	Toxic	-	-	-
Phosphamidon	4	1	5	3	3.0	2	9.0
Stirofos	1	4	1	4	3.0	1	5.0
TEPP	5	2	5	5	4.0	1	10.0

Trichlorfon	2	1	2	1	1.3	1	4.3

**Data Source: Assam Agriculture University, Jorhat and Department of Agriculture, Dispur

NOTE:

A. Lower the rating safer the insecticides.
B. The insecticides viz. endosulfan, phorate, stirofos, fenvaleratemethomyl are highly toxic to fish, hence their use should be restricted in fish cum paddy culture.
C. Insecticides such as azinphos-methyl, carbaryl, carbufurar, carbophenothionm, chloropyriphos, diazinonm, fenvalerate, diflubenzuron, dimethoate, mevinphos, EPN, methomyl, malathion, naled, stirophos, TEPP, dichlorovos and quinaphos are highly toxic to bee, hence their use should be restricted in the oilseeds, vegetables and fruits orchards
D. All insecticides mentioned in the list do not necessarily constitute our recommendation and the rating is based on available literature.

Annexure: XIII

Seed Stock Maintained by the Department:

Table: District-wise buffer stock of seed to be maintained by the ASC Ltd for Kharif

Year	District with Branches	Quantity of Seeds to be kept reserved (Qtls)			
		Paddy	Non Paddy	Non Paddy	Total
2013-14	Kokrajhar	4000.00	B/Gram-1500	G/ Gram-700.00	7000.00
	Kamrup-Guwahati	3000.00			3500.00
	Sonitpur-Tezpur	1000.00			1100.00
	Barpeta	2500.00			3700.00
	Jorhat	2000.00			3100.00
	Sivsagar	1500.00			2000.00
	Morigaon	2000.00			3000.00
	Darrang-Mangaldoi	999.16	B/ Gram - 112.50	G/ GRam-56.25	1167.91

	TOTAL	16,999.16	1612.50	756.25	25,267.91
	Barpeta				
2014-15	Guwahati Sonitpur Kokrajhar	11000.00	1700.00		12700
2015-16	Kokrajhar Barpeta Nagaon Sonitpur Guwahati	15000	2500(Nagaon)	1000 (Nagaon)	18500
2016-17	Guwahati Nagaon Barpeta Sonitpur Darrang Kokrajhar Dhubri Jorhat Golaghat Udalguri	20,000	5000(Nagaon)	2500 (Nagaon)	27500

	Nalbari				
2017-18	Barpeta	21,000	6500 (Nagaon)	2000 (Nagaon)	29,500
	Guwahati Kokrajhar Nagaon Nalbari Sonitpur Udalguri				
2018-19	Barpeta Nalbari Nagaon Kokrajhar	15000	7000	2000	24000
2019-20	Barpeta Nalbari Nagaon Kokrajhar	16000	7200	2300	25500

**Data Source: Assam Seed Cooperation

Annexure: XIV

Table: District-wise buffer stock of seed to be maintained by the ASC Ltd for Rabi

Year	Districts with Branches	Quality of Seed Kept to be Reserved(Qtls)		
		Mustard	**Oats**	**Total**
2015-16	Kokrajhar, Barpeta, Nagaon, Guwahati	12000.00	1000.00(Guwahati)	**13000.00**
2016-17	Kokrajhar, Barpeta, Nagaon, Nalbari, Dhubri	15000.00	1000.00(Kokrajhar)	**16000.00**
2017-18	Barpeta, Nagaon, Nalbari	16000.00	-	**16000.00**
2018-19	Barpeta, Nalbari, Nagaon, Kokrajhar	15000.00	-	**15000.00**
2019-20	Barpeta, Nalbari, Nagaon, Kokrajhar	15000.00	700.00	**15700.00**

**Data Source: Assam Seed Cooperation

Annexure: XV

Control rooms district and state headquarters :(As on 30.11.2019)

Sl No	District	Contact Person	Email	Contact No
At the Directorate Agriculture		**JDA(Pulse)-**	**agri-dept@nic.in**	**+91 3612332214**
At the Directorate Horticulture		**JDA(Hort)-**	**-**	**-**
1	**Baksa**	**District Agril Officer**	daobaksamusalpur@gmail.com	**+919435481539**
2	**Barpeta**	**District Agril Officer**	**daobarpeta@gmail.com**	**+91 9435126919**
3	**Bongaigaon**	**District Agril Officer**	**bongaigaondao@gmail.com**	**9954398380**
4	**Cachar**	**District Agril Officer**	**districtagriculturecachar@gmail.com**	**9435175803**
5	**Chirang**	**District Agril Officer**	**daocssatmachirang@gmail.com**	**8638709117 9401229339**
6	**Darrang**	**District Agril Officer**	**daocssatmadarrang@gmail.com**	**9435185702**
7	**Dhemaji**	**District Agril Officer**	**Dao15dmj@gmail.com**	**7035676882**
8	**Dhubri**	**District Agril Officer**	**daodhubri@gmail.com**	**9435120707**
9	**Dibrugarh**	**District Agril Officer**	**distagri_dbr@rediffmail.com**	**9435088533**
10	**Dima Hasao**	**District Agril Officer**	daodimahasao@gmail.com/daocssatmadimahasao@gmail.com	**9435523443**
11	**Goalpara**	**District Agril Officer**	daocssatmagoalpara@gmail.co/agrimmpa.goalpara@gmail.com	**9435186066**
12	**Golaghat**	**District Agril Officer**	dgolaghat@gmail.com	**9435471169**
13	**Hailakandi**	**District Agril Officer**	**Dao.hailakandi@yahoo.com**	**7896421251**

14	**Jorhat**	**District Agril Officer**	daojor12@gmail.com	**9435092258**
15	**Kamrup**	**District Agril Officer**	**kamrupdao@gmail.com**	**9706685091**
16	**Karbi Anglong**	**District Agril Officer**	daokarbianglong@gmail.com	**9435554372**
17	**Karimganj**	**District Agril Officer**	**Agrimmpa.karimganj@gmail.com distarikxj@gmail.com**	**9435173638**
18	**Kokrajhar**	**District Agril Officer**	daocssatmakokrajhar@gmail.com/agrimmpa.kokrajhar@gmail.com	**9435026166**
19	**Lakhimpur**	**District Agril Officer**	daocssatmalakhimpur@gmail.com	**9435085832**
20	**Morigaon**	**District Agril Officer**	daocssatmamorigaon@Gmail.com	**9435066470**
21	**Nagaon**	**District Agril Officer**	daonagaon@gmail.com	**9435353143**
22	**Nalbari**	**District Agril Officer**	**daonalbari@gmail.com**	**9954005205**
23	**Sibsagar**	**District Agril Officer**	**Dao.siv12@gmail.com**	**9435096457**
24	**Sonitpur**	**District Agril Officer**	**daotez@gmail.com**	**9435181580**
25	**Tinsukia**	**District Agril Officer**	distagritsk@gmail.com	**9435330142**
26	**Udalguri**	**District Agril Officer**	daocssatmaudalguri@gmail.com	**9435185702**
27	**West Karbi Anglong**	**District Agril Officer**	-	-
28	**Biswanath**	**District Agril Officer**	-	-
29	**South Salmara**	**District Agril Officer**	-	-
30	**Hojai**	**District Agril Officer**	-	-
31	**Charaideo**	**District Agril Officer**	-	-

32	**Majuli**	**District Agril Officer**	arunpathak1960@gmail.com	**9435231088**
33	**Kamrup M**	**District Agril Officer**	-	-

**Data Source: Directorate of Agriculture

Annexure: XVI

Status on Minutes of the Review meeting on Departmental DM plan held on 31st May'2019 chaired by SPC, ASDMA

As per the minutes of the meeting on review of Departmental DM plan held at conference hall of ASDMA, Chaired by SPC, ASDMA following action has been taken.

	Action Taken
1. The department to take up for creation of Seed Bank on scientific basis to address conservation of seasonal farming practices affected due to natural disasters.	**Matter discussed with Directorate level**
2. The department to identify vulnerable agricultural farming areas/locations of the State and undertake GIS mapping exercise of the same to priorities disaster management activities of the department	**DM Cell created and AMTRON will undertake the GIS Mapping exercise and will share through MIS to ASDMA**
3. There is need for documentation by the Department of the impact of the disaster recovery activities such as community nursery and pesticides distribution over a period of time. This will help in understanding and study of the impacted benefits of the farming community.	**Data related to Community Nursery and pesticides Collected (incorporated in DM Plan)**
4. SPC, ASDMA has suggested to document the indigenous best practices and success stories from the State which should be uploaded in the website. ASDMA team suggested that the department to share such practices with ASDMA's Knowledge Management portal.	**Success Stories and best practices collected and will send through Officially to upload with ASDMA's Knowledge Management Portal and also incorporated in DM Plan**

5. The department to develop IEC materials in context of disaster management for awareness generation among the farming community.	**IEC developed,incorporated in DM Plan**
6. The department to undertake collection of report/data's for documentation as a special drive for addressing natural calamities.	**Incorporated in DM Plan**
7. The department to take up for creation of cold storage/s district-wise especially for the flood prone districts of Assam.	**Matter discussed with Directorate leveland as of now budget is not allotted for Cold Storage**
8. The department to conduct study on various disaster resilient cropping/farming practices especially for flood, erosion etc. for adoption by the State as per district wise vulnerability mapping	**Formation of a team of officials from HQ to visit Assam Agriculture University (Jorhat) for various study and also to visit flood affected area and a formal letter will send to ASDMA to take up the matter with research institution**

Annexure: XVII

Success Stories

Success Story- 1
Commercial Cultivation of High Value Fruit Crops

Crop : Strawberry
Variety : Festival
Scheme : HMNEH, 2018-19

Details of Farmer:

Name : Abdul Munnaf
S/O : Lt. Jainal Abdin
Age/ Education : 40 years/ Graduate
Village : Pub Par Jatia Bhangra
P.S./P.O. : Muktapur
Block : BihdiaJajikona
ADO Circle : Loch
District : Kamrup
Contact No. : 9365636159

Abdul Munnaf is an educated youth engaged in farming since very young age. His land holding is only 15 bigha(2 hectare) and he grows Paddy, Mustard, and Seasonal Vegetables in his limited area. He is also having plantation of Assam Lemon and Malbhog Banana on the banks of his fishery covering an area of 1.5 Bigha. In the year 2018-19, under HMNEH scheme, he was provided Tissue culture Strawberry seedling and mulching film. He spared 0.5 bigha of his Mustard land for the new crop. As strawberry was a new crop to him, he was assisted by the local ADO on cultivation practices. After two months of planting he did his first plucking. It was 7 kg from 0.5 bigha. Then it gradually increased and from 3rd plucking, he harvested 20-25 kg at 3 days interval. Three months harvesting gave him a total yield of 600 kg of quality Strawberry fruits.

For marketing of the produce he approached the Directorate of Horticulture & F.P., Assam and market link was arranged for him with the Malls in Guwahati @ Rs. 90.00/250g. Thus he could earn net Rs.216000.00 from only 0.5 bigha land in 6 months. From the same land by growing Mustard he used to earn hardly Rs. 1000.00. Now Abdul Munnaf is very much enthusiastic to take Strawberry as his commercial Rabi crop instead of Mustard. His neighboring farmers are also impressed by his success and they are also interested to take up this crop in next season.

Introduction of such new crops not only increases income of the farmers it attracts new generation young farmers for cultivation and marketing of such lucrative crops.

Some of the photographs of Strawberry cultivation by Abdul Munnaf

Land preparation for Strawberry

Harvesting of Strawberry

Ready for packaging and marketing

Success Story- 2
Cultivation of High Value Crops under Protected condition

Crop : King Chilli (Assamese: BhotJalakia)
Variety : Local selection
Structure : Shade net house
Scheme : HMNEH, 2017-18

Details of Farmer:

Name : Sri Basanta Baruah
S/O : Sri Chandra Baruah
Age/ Education : 42 years/ HSLC pass
Village : Sensowa
Block : Salenghat
District : Jorhat
Contact No. : 9954108864

Sri Basanta Baruah is an educated farmer and very much interested to try the new and innovative ideas in his farm. He used to grow BhotJalakia(King Chilly) also known as BihJalakia since long. He is a farmer breeder and keeps his own seeds from the best plants of his garden. In spite of his full effort he could not reach his targeted income under open condition. Cultivation in open condition leads to high infestation of pests & diseases as well as risks of damages from heavy shower and sunshineIn the year 2017-18, Baruah received assistance for construction of a shade net house from District Agricultural Officer, Jorhat under HMNEH scheme. He started cultivation of BhotJalakia inside this protected structure. Use of Mulching film control weeds and preserve soil moisture and soil borne diseases and ultimately reduces the cost of cultivation.

Sl. No.	Particulars	By Normal process	By adopting technology (mulching/ cultivation inside shade net house)
1	Total cost of cultivation	Rs. 1,79,200.00	Rs. 3.72,000.00
2	Yield per hectare	Rs. 80.00 Qtl/Ha	Rs. 120.00 qtl./ha
3	Cost per qtl.	Rs. 2240.00	Rs. 3100.00

4	Sale price per qtl	Rs. 16,000.00	Rs. 16,000.00
5	Total Income	Rs. 12,80,000.00	Rs. 19,20,000.00
6	Net Income	Rs. 11,00,800.00	Rs. 15,48,000.00

Marketing: There is a high demand of quality BhotJalakia in local markets as well as nearby states like Nagaland, Manipur, Tripura and even in West Bengal.

Some of the photographs of King Chilly Cultivation by Basanta Baruah, Jorhat

Cultivation under Shadenet House

Fresh King Chilly ready for marketing

Sun Dried King Chilly ready for packaging

Success Story- 3
Small Nursery for production of Planting Material

Production of quality planting material of horticultural crops is one of the component under the Centrally Sponsored Scheme of Horticulture Mission for North East & Himalayan States (HMNEH). The District Agricultural Officer, Barpeta with this aim proposed the name of Mrs. KahrunNehar for assistance to be provided for establishment of a Small Nursery. Accordingly, her name was approved at Directorate and the nursery was set up to fulfill the needs of the farmers of the district as well as neighboring areas.

Component : Production of Planting Material
Status : Small Nursery
Assistance : Rs. 7.50 Lakh
Scheme : HMNEH, 2017-18

Details of Farmer:

Name : Mrs. KhairunNehar
W/O : Tabibar Rahman
Age/ Education : 38 years/ HSSLC pass
Village : Kayakuchi
Block : PakaBetbari
District : Barpeta

Mrs. KhairunNehar had initially set a nursery in a plot of land in the year 2016 in an area of one bigha with her own initiative. Mother plants were collected from established nurseries of Assam and West Bengal. Initially it was a business of limited production to fulfill the need of limited area with self manpower. On receipt of assistance from HMNEH Scheme, she expanded her nursery in 7.5 Bigha (1.00 Ha) area. Necessary arrangement for Irrigation system, Green Houses, Mother Blocks as per schematic guideline were set up. The Nursery at present accommodates numbers of mother plants as well as ready planting materials.

Sl. No.	Crop	Mother Plant	Ready stock
1	Assam Lemon	350 nos.	12000 nos.
2	Litchi	50 nos.	2000 nos.
3	Apple Ber	10 nos.	1000 nos.
4	Mango	30 nos.	650 nos.

5	Pear	5 nos.	2000 nos.
6	Arecanut	200 nos.	5000 nos.
7	Guava	10 nos.	2000 nos.
8	Coconut	5 nos.	-

In addition to the above, seedlings/cuttings of seasonal flowers, vegetable seedlings are also available. The income for last 3 years is increasing in positive direction.

Year	Approximate income (Rs. in Lakh)
2017-18	2.50
2018-19	4.0
2019-20	5.50 (Estimated)

Mrs. KhairunNehar now becoming a successful entrepreneur, besides providing employment of 10 nos. of skilled labour and 10 nos. of unskilled labour. She has been instrumental in motivating fallow farmers for taking nursery as a means of income generation besides fulfilling ones passion for nature.

Some of the photograph of Small Nursery of Mrs. KhairunNehar


RAHMAN NURSERY
Under :- HMNEH, Assam, 2017-18
Dattakuchi, Kajirmill, Dist: Barpeta
All kinds of flowers, fruits plants & other plants
retail & wholesale available here.
Cont : 9864330671 /

Success Story- 4
Cultivation of Water Melon showcasing use of Plastic Mulch Film

Crop : Water Melon
Variety : Big Boss
Situation : River banks
Scheme : HMNEH, 2018-19

Details of Farmer:
Name : Shankar Madhab Krishak Got comprising group of farmers
Location : SaruLah
PO. : Sualkuchi
Circle : Hajo
District : Kamrup

Watermelon is one of the fruit crops grown in the State in recent years with promising results. Support provided under the Scheme of HMNEH encouraged the farmers for large scale commercial cultivation. The yield is significant with introduction of improved seeds and quality of the fruits is also able to capture the local markets. The crop is generally grown in the river banks/char areas after receding of flood in the Rabi season and harvesting starts from May/June.

The Initiative:

A group of farmers under the Banner of "Shankar Madhab krishak Got" of Sualkuchi area under Kamrup district headed by Sri Manjit Hazarika, President and Sri RidibSaloi, Secretary came forward for commercial cultivation of Water Melon. The site is selected in the river bank of mighty Brahmaputra called SaruLah. The soil is ideal for cultivation of Water Melon.

Technology adopted:

Hybrid variety Big Boss is selected and procured from authentic source. Seedlings are grown in polybags well ahead in such a manner so that seedling became ready for planting as and when main field is ready for transplanting. One of the drawbacks of growing Watermelon in riverine area is the problem of weed as well as soil moisture stress in critical growth stages. Both

the problem results in requirement of more manpower for weeding and decreasing the size of fruit and ultimately low yield per unit area. To overcome these problems, farmers were provided with plastic mulch film as per provision of HMNEH. Beds were prepared and covered with the mulch film. Planting was done by making holes maintaining proper distance as per variety grown. Mulching helps in conserving the soil moisture as well as suppresses weed growth resulting profuse vegetative growth. Thus manpower requirement drastically reduced for intercultural operations. Significant result was obtained and farmers were able to harvest quality crop that can compete with that of imported from other States.

The Comparison:

Particulars	Through Normal practice of cultivation	By adopting technology of plastic mulch and improved seeds
Total cost of cultivation (per hectare)	Rs. 1,30,555.00	Rs. 1,50,000.00
Yield (MT/Ha)	18.00 MT per ha	30 MT per ha
Sale Price (per MT)	Rs. 18000.00	Rs. 20000.00
Total value (per ha)	Rs. 3.24 Lakh	Rs. 6.00 Lakh
Net income (per ha)	Rs. 1.93 Lakh	Rs. 4.50 Lakh

- The cost for manpower is reduced to Rs. 10,000.00 per ha from Rs. 25,000.00 in normal practices.
- Use of plastic mulch may increase the total cost of cultivation but the return per unit area compensate it.
- Return per hectare is increased to Rs. 2.57 lakh per hectare over normal practices.

Some of the photographs of Watermelon Cultivation

Seedling grown in polypot

Planting in the main field

The grown up seedling

Fresh fruit harvest

Retail Sale in Guwahati markets

Retail Sale in Guwahati markets

Assam tastes sweet success of strawberries

PRANAB KUMAR DAS

The strawberry farm at Jorpukhuri in Sonitpur district. Picture by Pranab Kumar Das

Tezpur, Feb. 19: After Meghalaya, strawberry cultivation has found its first foothold in Assam at Jorpukhuri in Sonitpur district where farmers have successfully cultivated their first crop.

The seven farmers, under the banner of a self-help group (SHG) popularly known in the area as Bithorai, led by a local youth, AtulMochahari, have taken up commercial cultivation of strawberry in a big way.

At a time when most unemployed youths and school dropouts from the greater Jorpukhuri area, due to various reasons, either go outside the state seeking employment or join militant groups, the group has paved the way for a new way of livelihood.

The newly elected Dhekiajuli MLA Ashok Kumar Singhal has taken up the initiative of

strawberry cultivation in the area. The head of the self-help group, AtulMochahari and Bhaskar Bora, who has lent a helping hand for the successful growth of the venture on a three *bigha* plot about 30km from Dhekiajuli town and 70km from here, have toiled hard to reap the harvest.

Talking to this correspondent, Bora said a good number of scattered farmers, mostly engaged in traditional cultivation, including paddy, are nowadays focusing on strawberry cultivation because if its commercial viability.

He said the farmers, who have come together under Bithorai, were supplied with 12,000 saplings of strawberry under the Assam government's scheme - Horticulture Mission for North East and Himalayan States.

"The first year's harvest of a sizeable quantity of strawberries has ended. Not only in the Jorpukhuri area, farmers from various corners of the Dhekiajuli Assembly constituency - Sirajuli, Rowmari, Thelamara and Panchnoi - have also taken up strawberry cultivation in a collective way for the last few years. If the trend continues, there is a probability of a shift to strawberry cultivation," Bora said.

The farmers of the area had taken up commercial cultivation of strawberries following an initiative by Singhal to show commercial viability of the fruit, Bora added.

The farmers said they had sold strawberries at Rs 500 per kg while the cost of production is only between Rs 150 and Rs 200 a kg.

Singhal said the demand and commercial viability of strawberry cultivation in the area had helped the youths.

The MLA added that the genus Fragaria, collectively known as strawberries, cultivated worldwide, is widely appreciated for its unique characteristics such as fragrance, bright red colour, juicy texture and sweetness.

Singhal, who is also working in the field of entrepreneurship among the poor people of the constituency, said strawberry is consumed in large quantities, either fresh or in processed food, juice, pies, ice creams, milkshake and chocolates making it one of the most commercially-consumed fruit.

He said the packaged marketing of strawberry is done mostly in Guwahati.

Success story of Masuda Begum

Title : Ray of hope with minor crop

Situation: Masuda Begum a woman from Majgaon village of Bechimari Dev block, Darrang district was working as an assistant teacher of non-provincialized school. Her family had a small land holding for agriculture and so she was suffering from financial hardship. One day she got information about a farmers training of ATMA from AEA during 2017-18.

Response: In the year 2017-18, as per suggestion of the BTM, Bechimari Dev Block and she attended farmers training under ATMA where she was able to learn scientific cultivation of Apple Ber and other vegetables. The BTM understood her need and again she was selected for exposure visit to KVK, Kamrup, Horticulture Research Station, Kamrup and other research station . During these visits, she learned scientific cultivation practices of different crops and gathered good experiences.

Result: After coming back, she started cultivation of **apple ber** in one(1) bigha of own land and invested Rs.75000 by taking loan from private organization. She was determined to get success. After 6 months she was overwhelmed by looking the fruits and she got a ray of hope to overcome from poverty. During whole crop period she was in close contact with BTM and followed all guidance given by the BTM for management of her farm. Finally she harvested fruits as expected and got Rs. 180,000.00 by selling the matured apple ber. Her total earning from the crop was Rs (180000-75000) = 105000/-

Evidence: With good hope and enthusiasm, this year she has extended her farm upto 6 bighas for the same crop. After looking her success and progress, neighboring women farmers also came forward.

During Recoding with News Chanel. Masuda delivering her speech.

During Field Visit of Masuda Farm with ATM and Word Veg Technical Officer.

With Abdul Rejjak Masuda's husband

Title: **MAIZE - WAYS TO IMPROVE LIVELIHOOD**

Situation: - The Village Garakhat is situated 5 Km distance from Dalgaon town under Bechimari Development Block, Darrang district. Farming is the main source of income of the villagers. The Farmers are cultivating Rice, Vegetables, Jute and Boro Paddy as their livelihood.

Response: In the year 2011, after starting the activities of CSS ATMA at Bechimari Dev. Block, Ruhul Amin and other fellow farmers came in contact of BTM & ATM and they participated in different training, exposure visit and different activities of ATMA. During one training programme on scientific cultivation of maize, they were interested to cultivate maize crop commercially. Gradually they have shifted cultivation of maize from Jute and Boro Paddy in that area. Last year, the area (earlier covered by the jute & Boro paddy) was half filled with maize, but this year the area is completely filled with maize crop.

Result:. Last year they had grown the variety JKH and other hybrid variety of maize. This year they have grown the maize variety NMH-731 (under APART) and DKC (Own) in that area. By adopting scientific cultivation practice, they are able to produce Maize with an average yield of 10-12 qt/ bigha. The farmers received a good profit from their new crop as compare to the previous one.

Evidence: Success of Ruhul Amin and other farmers of village Garakhat has encouraged the unemployed youth of the neighboring villages and accepted the technology by many farmers now.


পথাৰ দিৰস


অসম কৃষি বাণিজ্য আৰু গ্ৰাম্য ৰূপান্তৰ প্ৰকল্প (APART)ৰ অধীনত
পথাৰ দিৰস
আয়োজক
কৃষি প্ৰযুক্তি ব্যৱস্থাপনা অভিকৰণ (ATMA), ৰেঙ্গমাৰী উন্নয়ন খণ্ড
কৃষি বিভাগ, দৰং

SUCCESS STORY UNDER NFSM-RICE, 2017-18
BARPETA DISTRICT, ASSAM

Title: Hybrid paddy- a means of high earning in less area

Sri Nowab Ali a farmer of Jadabpur Village, under Mandia ADO circle, District Barpeta is having around 1.87 Ha of land for cultivation. He had no other source of income & he used to grow paddy in general way which was not sufficient to run his family. He was not able to think good from his agriculture. In the year 2016-17, through a field staff (AEA) of our department, he was involved with the NFSM scheme implemented in the district.

He started growing of HYV Summer paddy with good variety seed supplied from the department and also some local varieties of paddy. He used all recommended package of practice during cultivation. He harvested a good produce from his plot and got encouraged.

During the year 2017-18, he started cultivating Hybrid Summer paddy Variery VNR-2355 plus in an area of 0.67 ha of land which was supplied by the Agriculture department under NATIONAL FOOD SECURITY MISSION. Supervision and regular field visit of departmental officials including NFSM PMT encouraged him to adopt scientific method of package of practice for the crop. Surprisingly he found a vast difference in yield compared to his earlier varieties. He reaped crop with productivity of 9660 kg per hectare from his plot. Investing Rs 41124.00 he earned about Rs 84136.00 Which gives profit of Rs 43012.00 from his plot. Now he is self sufficient and able to improve his living condition.

Photographs related to success story under NFSM-RICE, 2017-18
BARPETA DISTRICT, ASSAM

National Monitoring Team visited hybrid paddy demonstration

Farmer Nowab Ali in his Summer paddy field under NFSM Rice, 2018-19

Success story under NFSM (PULSE)

Title : Newly introduce crop like lentil may change the economy

Sri Dibyajyoti Neog of village Allengmora gaon under North West Development Block of Jorhat district was a sincere farmer. Winter paddy was the main crop of Jorhat and other surrounding districs. Usually the farmers of the village of Allengmora gaon cultivating Sali rice mostly during June/July to November/December and some Kharif pulses like Blackgram & Greengram. However, after the harvest of Sali rice, entire zone remains chiefly as fallow land till few years back.

After implementation of NFSM Pulses programs in Jorhat district since 2010-11, the farmers were greatly been motivated by the Department of Agriculture, with different interventions in cultivation. They were now using high yielding quality varieties of Lentil, Pea, Rajmah in Rabi season & Blackgram, Greengram as Summer pulses in Jorhat.

Dibyajyoti Neog becomes an example of progressive farmer for growing lentil crop successfully introducing as new crop after the harvesting of sali rice. It was an effective cropping sequence in the village localities. He had grown WBL-77 variety of lentil in rabi season. Using recommended package & guidance of departmental officer, he obtained 10 qtl seeds lentil in a Demo area of 1 ha, which surpasses with 47.05 percent increase in yield in comparison to the district average. He has obtained a high net profit of Rs. 38,000.00 per ha from the otherwise fallow area, which become an encouraging example for the other farmers in the localities.

Farmer Dibyajyoti Neog in his lentil field during early vegetative phase

Observing Lentil crop at the time of flowering stage under NFSM, 2018-19

SUCCESS STORY

Title: Adoption of new rice variety through NFSM- Rice scheme:

The village Kolibari Chuk, Gereki Tezpur under ADO circle Depota AEA Eleka Bhojkhowa GP Ushapur of sonitpur district was a agriculture village where most of the peoples were farmers. Among them Sri Santosh Koiri was an young and energetic farmer of the village. They usually cultivated paddy with local, traditional variety and some high yielding varieties. They were not aware about the performance of hybrid variety.

The field staff of our department provided a demonstration of hybrid paddy and gave technology of its cultivation practices. The hybrid paddy variety Sahyadri 4 was supplied from H.Q., Guwahati covering an area of 100Ha in the village. Around 112 nos of farmers of this village were engaged in this demonstration programme.. Sri koiri covered an area of 1.0 ha under the programme. He cultivated with full package and allotted inputs under the supervision of concerned field functionaries.

This paddy variety was cultivated during summer season in an area with assured irrigation facility. The average yield obtained by him was 9.4 qtls per ha while the average yield of other paddy varieties are found 6 to 6.6 qtls per ha during this season. He got extra benefit of 2.8 qntl from his one ha of land and earned about Rs 3360/- more additional over the local Variety.

So, this new variety gained popularity among the farmers and it earns a real success to the farmers. In the next coming season farmers are vowed to take up more area with Hybrid paddy replacing the local traditional varieties. Since implementation of NFSM programs in the district, farmers are greatly benefited with newly introduced different hybrid varieties in terms of acreage, productivity and net profit.

Finally, the growers are thankful to the scheme NFSM- Rice for the gift of such a new intervention.

Crop cutting of summer paddy on field day under NFSM Rice, 2018-19

SUCCESS STORY under RKVY

1. **Title**: Women Empowerment in Agriculture.

2. **Category**: JEUTI SHG was a small organization of women of village- Bhatipara under Bongaigaon district working in agriculture as main objective.

3 **Challenge**: Conversion of land to double cropping as well as to increase the income of farming community by cultivation of Mustard crop after harvesting of Sali Paddy. Though irrigation facility is not available, the farmers were interested to cultivate the mustard crop in rainfed condition.

3. **Initiatives** : Under RKVY Scheme, information was provided to the involved farmers regarding the cultivation of mustard crop with modern technology through which more production can be achieved. They were given training on cultivation practices and HYV Seeds and other nutrients were also provided to the group under the scheme.

4. **Key Results**: The JEUTI SHG, a women group cultivated 15 (fifteen) Bigha of mustard crop, Variety- P- 26, under the guidance of Departmental Officers. The group was able to harvest 24.80 Qtl of mustard seed from their plot in good condition. They incurred Rs 48000/- as production cost while they received Rs 74000.00 by selling their produces. They earned profit about Rs 26400.00.

5. **Impact**: It increase the knowledge about cultivation of mustard cultivation, value addition its market demand, economic return etc., cultivation of mustard after harvesting Sali Paddy the Women SHG got additional income.. As a result the other women of that locality also motivated to cultivate such type of crop after harvesting of Sali paddy.

6. **Lesson Learned**: The crop was cultivated in rainfed condition. If assured irrigation can be provided the production will be increased.

7. **Some images relating to the success story**



Success story under RKVY, Dhemaji district

Title : Empowerment of SHG through agriculture

A few farmers have been working together and made a SHG named Kapahtoli Amlakhi in the village Kapahtoli PO Matikhula under Dhemaji district. At that locality generally land was lying fallow after harvesting of Sali paddy.

Under RKVY Scheme, the group was provided information regarding the cultivation of mustard crop with modern technology. Along with training, HYV seeds and other inputs lie micro nutrients were supplied to the group. The objective of the group was to increase their income by converting the land to double cropping.

The irrigation facility was not available in their plot of land and hence the group cultivated the mustard crop in rain fed condition under the guidance of departmental officers. They grown TS-36 Variety of mustard in 2.0 ha area of land with proper practice. They harvested 25.68 qtl of mustard seed from their plot. After incurring the cost of Rs 48000/- as cost of cultivation they earned Rs 77040/- by selling their produces. Ultimately the group got profit of Rs 29040/- from their plot of land.

This practice has good impact in cultivation of mustard crop after harvesting of winter paddy in rain fed condition. But irrigation in mustard crop may add additional production which helps to earn good profit.

Success story under RKVY, Kamrup district

Title : Additional income through good farming practice

The farmers of village Nakul-2 of Rangia sub-division were usually engaged in cultivation of paddy and rabi vegetables. But they could not meet their economic needs through this agricultural practice. The P P S of this village wanted an alternate crop which will provide more income than cultivation of existing crop.

The Padum Kuwari Pathar Parichalana Samiti of village Nakul-2, Kamrup district started to grow cereal, pulses and oilseeds crop on experimental basis under RKVY with the help of local ADO and other official.

A plot of 330 bighas land involving about 120 farmers was selected for cultivation of cereals, pulses, and oilseeds under RKVY, 2018-19. They started with paddy crop variety Sahabhagi in 150 bighas and during the whole crop period, active guidance were followed and maintained proper package of practice. The crop was harvested and the production found was better than the previous year. The cost benefit ratio was in their favour.

Similarly, they cultivated pulse crop (green gram and black gram) in 100 bigha, mustard crop in 50 bigha and hybrid paddy (Bioseed) in 40 bigha during that year. The group earned Rs 1575000/- from high yielding paddy, Rs 600000/- from pulse crop, Rs 180000/-from mustard crop and also they were able to earn Rs 56000/- by growing hybrid paddy.

Through the RKVY, the farmers were motivated to diversify their traditional farming pattern. Under RKVY, Kamrup district

Annexure: XVIII

Training

Annual Training Calendar of SAMETI, Assam for the year 2019-20

Summary:		
Sl. No.	**Type of Programme**	**Number**
A	On-campus Training Programme	12
B	Off-campus Training Programme	2
	Total Training Programme	**14**

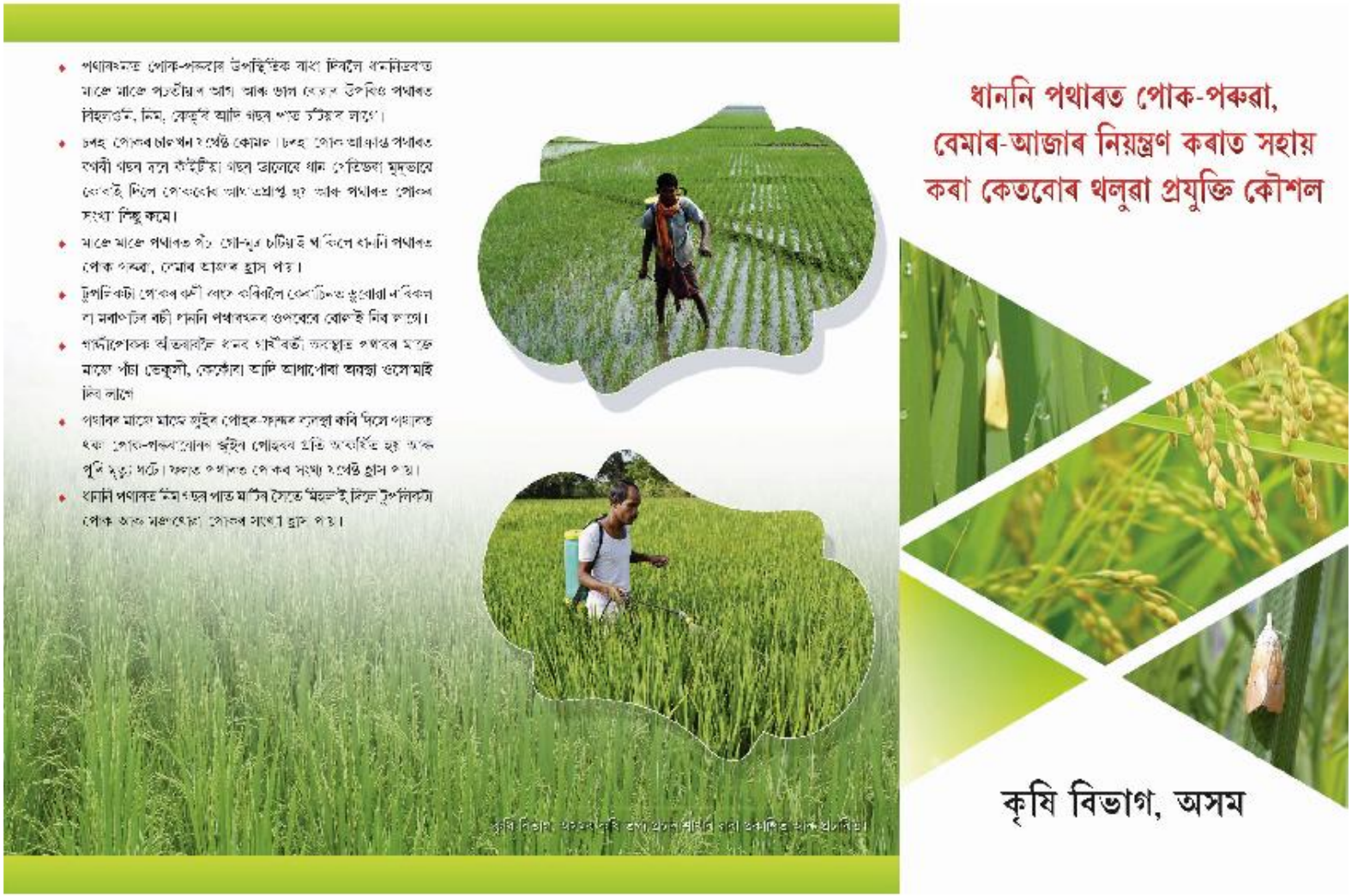
A. On Campus Training Programmes:

Sl. no.	Title of the Training	Course Coordinator	Proposed Month	Place	Target group	Nos. of participants	Duration	Man days	Remarks
1	Gender Budgeting & Gender Mainstreaming in Agriculture & allied sectors	Purnima Das, Gender Coordinator	Dec., 2019	Krishi Niwas	Convener/DPD/BTM/ATM	30 nos	3 days	90	Carry over from previous Annual Training Calendar, 18-19
2	Market Led Extension- Principles, Market Analysis and IT Application	Jayanta Basumatary, Deputy Director	Dec., 2019	Krishi Niwas	do	do	3 days	90	do
3	Preservation, Packaging and Value Addition of Meat	Manik C.S. Bordoloi, Deputy Director	January, 2020	Krishi Niwas	do	do	3 days	90	

4	Practices of Climate Resilience in Agriculture & Disaster Management	Dr. Faridur Rahman, Deputy Director	do	Krishi Niwas	do	do	3 days	90	Carry over from previous Annual Training Calendar, 18-19
5	Protected Cultivation of Off Season Vegetables	Purnima Das, Gender Coordinator	do	Krishi Niwas	do	do	3 days	90	
6	Organic Farming Techniques and Organic Certification	Jayanta Basumatary, Deputy Director	February, 2020	Krishi Niwas	do	do	3 days	90	Carry over from previous Annual Training Calendar, 18-19
7	Quality Control and Costing of Handloom Products	Manik C.S. Bordoloi, Deputy Director	do	Krishi Niwas	BTT Member (Sericulture)	do	3 days	90	
8	Food Preservation, Packaging, Labelimg and Branding for Remunerartive	Purnima Das, Gender Coordinator	March, 2020	Krishi Niwas	WIG/ SHG/FSG	do	3 days	90	Carry over from previous Annual Training Calendar, 18-19
9	Breed Improvement Measures in Livestock and Poultry	Dr. Faridur Rahman, Deputy Director	do	Krishi Niwas	Convener/DPD/BTM/ATM	do	3 days	90	do
10	Low Cost Housing and Sanitation Tools for promoting Scientific and Commercial Rearing of Poultry, Pig and Goat	Dr. Faridur Rahman, Deputy Director	do	Krishi Niwas	Vety. Progressive Farmer	do	3 days	90	

11	Fishled Integrated Farming	Manik C.S. Bordoloi, Deputy Director	do	Krishi Niwas	Fishery Progressive Farmer	do	3 days	90	
12	Training on ERMS/DBT/Cashless Transaction and PFMS, Office Accounts, Record Keeping, MPR, APR etc	Jayanta Basumatary, Deputy Director		Krishi Niwas	BTM/ATM/Acctt/CP	do	3 days	90	
B. Off Campus Training Programmes:									
1	Book Keeping, Record Maintanance and Record Keeping, Orientation on Departmental Schemes	Manik C.S. Bordoloi, Deputy Director	February, 2020	Office of the DAO & PD, Golaghat	AEA	do	3 days	90	
2	Rice Based Value Addition	Jayanta Basumatary, Deputy Director	do	Office of the DAO & PD, Bongaigaon	do	do	3 days	90	

IEC Material



Annexure XX

SNAPSHOT OF 2019-20

CROP DAMAGE