Weather based integrated agro advisory for the month of October

As per the model guidance, changeover of atmospheric circulation pattern as well as reduction in the moisture content is likely only after 6th October. Thus the withdrawal of southwest monsoon is likely to be delayed further and could commence only in the second week of October.

Crop Advisories
• Field preparation should be started for rabi crops. Ploughing and planking should be done properly to conserve the moisture in the soil.
• Field sanitization is advised before sowing of rabi crop. Bunds, channels, uncultivated fields and field roads should be cleaned by removing weeds also use fully decomposed FYM or compost before sowing of crops and vegetable as it improves the physical and biological properties of soil and thus increases the water retention capacity as well as nutrient status of the soil.
• Transplant marigold as trap crop (1 row /14 rows of tomato) 15 days older than tomato seedling.
• Deep ploughing should be done to expose the soil borne pathogens and hibernating stage of defoliators.
• Grow mustard as a trap crop in cole crops after every 10 lines.
• Early sowing should be done to avoid damage due to mustard-aphid, and major diseases.
• Follow clean cultivation.
• Pruning and destruction of severely affected twigs with scales and borer thereby preventing build up of population in citrus orchard during Oct to Dec.
• For ginger, diseased plants should be identified while the crop is still in the field. Rhizomes from such plants should not be selected for the seed purpose. Mechanical collection and destruction of grubs, weevils, larvae and adult beetle periodically will reduce the incidence of insect pests.
Livestock Advisories
Sick animals should be kept separate from the others. Dead animals and waste should be disposed of.
Poultry
❖ Vaccination should be started for Ranikhet disease. For chicks Lasota vaccine@1 drop in the eye or nostril. For adult bird – R2B vaccine @0.5ml
❖ Vitamin E and selenium supplement should be given to poultry for diseases resistance. Mixed the supplement in clean drinking water. Change the water daily
❖ Good ventilation in the chicken shed is must, because chickens naturally produce a lot of moisture in their breath and droppings. Poor ventilation inside their house may create an ammonia build-up, which will affect the poultry's eyes and respiratory system and makes them sick
Piggery
❖ A clean, sanitary environment provides the best prevention for internal and external parasite which can be serious problems. For diseases that can be prevented by vaccination, a veterinarian should be contacted to provide such services routinely
Fisheries
❖ Partial harvest in order to reduce stocking density can be done.
❖ Prune tree branches around the pond so that leaves do not fall on water.
❖ Remove pond bottom debris before the onset of winter preferably by October
❖ Do take care of your pond every day when you take food to your fish, make sure the pond remains full of water. Take the advice of experts and information from mass media

Rapeseed/ Toria- a potential climate resilient oilseed crop under zero tillage practices in Mon district Nagaland

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The Krishi Vigyan Kendra, Mon (Aboi), Nagaland implemented under National Innovations Climate Resilient in Agriculture- Technology Demonstration Component (NICRA- TDC) during 2015. Yield performance of rapeseed varieties were evaluated under zero tillage cultivation and compared with crops grown under conventional tillage was demonstrated. Since there was no rain throughout the crop period, the growth and yield parameters in all the rapeseed-mustard varieties were better in zero tillage than conventional tillage due to residual soil moisture after rice harvest. Among the rapeseed varieties M-27, TS- 36, TS-38, TS- 67 gave maximum average yield 6.2 q/ha (range 4.1 to 8.3 q/ ha) in zero tillage cultivation.

The 10 farmers across 6 villages of Aboi area Mon district are adopting the technology, improved their income, by getting average net profit of Rs. 17,800/ ha within 4 months with low investment of Rs. 8000/ ha. By observing the standing crop in the field altogether, 30 farmers across 6 surrounding villages in Aboi area Mon district adopted this technology and the area coverage under zero tillage cultivation of rapeseed- mustard increased to 25 ha during rabi 2015 to 2018. Under the water stress situation where there was no rainfall during the crop period of rabi 2016, M-27, TS- 36, TS- 38 & TS- 67 rapeseed gave maximum average yield of 6.8, 5.7, 7.1, 5.4 q/ ha respectively, under zero tillage cultivation. Similar trend was observed during rabi in 2017 & 18 under the water stress situation in zero tillage cultivation. The present success story in the farmer's field indicated that rapeseed- mustard is a climate resilient crop which can be grown without water in the residual soil moisture. By adopting zero tillage, the farmers could increase the productivity, reduced cost of cultivation thereby increasing the cropping and earning the additional income for them with less effort. Zero tillage also helps in timely sowing (October), conserving soil moisture and requires less water, saves tillage cost and time, and the soil is also protected from erosion due to the retention of surface residues thus reducing organic matter depletion. The improved version of this zero tillage cultivation and no chemical method of plant protection may be recommended to the resource poor farmers of the district in the context of climate change.

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Farming Fish in Polythene lined ponds

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In India, farm pond has been an integral part of farming system which stores water during rains and the same is used for giving life saving irrigation. Traditionally farm ponds were made either at individual level or on community basis for harvesting rain water or run-off water. However, in many areas the soil type is such that it cannot hold water. In such areas it is essential to seal the pond to reduce seepage and percolation losses. The widely used practice is to lining of ponds with polythene sheet. These polythene lined ponds can store water which can be used as source of irrigation for standing crops at critical growth stage. Apart from irrigation such ponds can be readily used to culture fish. With proper management measures a production upto 2000 – 2500 kg per hectare (1 hectare =7.5 bigha) can be achieved.

Pond Preparation:

- While preparing the pond for plastic lining, an inlet should be provided to allow rain water/surface run-off to enter the pond.
- Similarly provide a suitable outlet to maintain the required depth of water and avoid over flow.
- Once the plastic lining is over, apply at least 10 - 15 cm layer of soil over the pond bottom.
- Allow the pond to fill with rain water.
- Once water is filled upto the desired level, apply lime as per the recommended dose after checking the pH of the water. A pH range of 7-9 is considered suitable for fish growth.
- After seven days of liming apply cow dung @ 200 kg/bigha (1 big-ha = 14400 sq ft.)or Poultry manure @ 80 kg/bigha or pig dung @ 100 kg/bigha initially.
- Then apply urea @ 1.5 kg/bigha and SSP @ 2 kg/bigha. Application of fertilizer and manure shall ensure better growth of planktons – the natural food of fish. Slowly the water colour turns green. Appearance of greenish colour indicates that there is sufficient growth of fish food organisms and the pond is ready for stocking fish.
- Unlike conventional fish farming in earthen pond, application of manure and fertilizer in plastic lined pond is less as the soil water interaction is less.

Stocking of fish

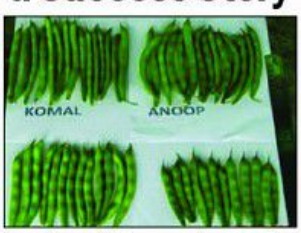
- Selection of fish to be stocked depends on the preference of the grower. However, the most commonly cultured fish is the six species composition of carps viz. Catla, Rohu, Mrigal, Common carp, Grass Carp and Silver carp.
- A total of 8000 – 10000 nos. of fingerlings can be stocked in one hectare pond area.
- Since, the rearing periods is limited to 7-8 months, try to stock 10 cm size fish or stunted yearlings to achieve better growth.
- Fish should be stocked in the following ratio; Catla-20%, Rohu 25%, Mrigal-15%, Common carp – 10%, Grass carp - 10% and Silver carp – 20%.
- Fish brought in oxygen packed bag should not be released directly into the pond.
- Keep the plastic bag floating on the water surface for atleast 30 minutes and then open the bag mouth and allow the fish to swim into the pond.
- Stocking of fish should be done during cool hours of the day especially in morning time.
- Never stock fish in noon time as the water temperature is high during noon hours and the stocked fish may die due to temperature shock.

Post-stocking management

- After stocking, the fish has to be fed with supplementary food daily. This is because the production of natural food in plastic lined pond is less and therefore cannot fulfil the total food requirement of the stocked fish.
- Rice polish, rice bran, wheat bran, mustard oil cake (de-oiled), ground nut oil cake are some of the ingredients used as supplementary feed for fish.
- The feed is prepared by mixing any one of rice polish/rice bran/ wheat bran with soaked mustard or groundnut oil cake in equal proportion and then by adding mineral mixture powder @ 1% of the total feed prepared.
- The prepared feed can be made into dough and put into the pond.
- Alternatively, commercial fish feed available in the market can also be fed to the fish.
- In areas where integration with pig/cattle/ poultry is possible, the waste material alongwith the dung can be flushed into the pond. This shall serve as manure for plankton growth as well as food for fish. This way the cost incurred on supplementary feed can be minimised.
- For grass carp, banana leaves, leftover leaves of vegetables grown on the embankment can be provided. Apart from these, grasses like para, napier, etc can also be fed to grass carp.
- Sometimes, due to excessive deposit of manure, plankton or algal bloom may appear. In such cases, the bloom should be removed immediately manually. The best way to remove the bloom is by dragging fine meshed net.
- Also, when bloom appears, stop supplementary feeding as well as manuring till bloom disappears.
- In summer months, the plastic line pond water temperature increases. This adversely affects the metabolic activity of the fish. Hence, it is necessary to provide shelter for the reared fish.
- Fish shelter can be provided by growing floating aquatic plants on the pond surface. Care should be taken that the plants does not cover more than one-third of the total water surface area.
- Periodic checking of pH is necessary to ascertain the requirements of lime. If the pH drops below 7, lime has to be applied.
- Liming during winter months is essential even if the pH is within the desired range. This is because fish are susceptible to diseases and lime act as a prophylactic agent.
- A major problem encountered in plastic lined ponds is the tearing of the lining materials. This may happen due to frequent human interference or due to rodent.
- Rodents cut the lining materials resulting in loss of water due to seepage. Therefore, one has to keep a strict vigilant and take appropriate measure to control rodents.
- Similarly, frequent walking over the polythene sheet should be avoided.
- After seven months of rearing or when the water level decreases, the fish should be harvested. Harvesting should be done either by cast net or drag net. Care has to be taken that more person does not enter the pond.
- From one hectare pond area, a production of 2000 - 2500 kg (285-350 kg per bigha) can be obtained in 7-8 months rearing period.

Frenchbean cultivation in Longleng District of Nagaland- a Success Story

Dr Patu K Zeliang
ACTO, PBG, KVK Peren



Frenchbean (Phaseolus vulgaris) commonly known as kidney bean, common bean or rajmash is a green vegetable as well as grain pulse and economically a very profitable crop. Thus its commercial cultivation can be an avenue for enhancing farmers' income in the hill ecosystem. It is also a highly nutritious crop. The composition of green pod (per 100g) contain, protein=1.7g, carbohydrates= 4.5g, Vit. A= 221 IU, Vit. C= 11 mg and Calcium = 50mg. Dry beans are also rich in protein. The optimum temperature for cultivation of French bean is 15-25°C. It is sensitive to high rainfall, frost and high temperature. The ideal soil PH for growth of french bean is 5.5-6.0.

Longleng, the tenth district of Nagaland is a strip of mountainous territory with a total area of 885 Sq.km, situated at 26°26' N latitude and 94°52' E longitude. Agriculture is the main source of livelihood and Jhum cultivation is the most common form of agriculture. The district of Longleng has monsoon type of climate with a minimum temperature of 10° C in winter and a maximum of 28° C in summer. Though climate and other natural resources are favourable, farmers are not able to take up vegetable production on a large scale for income generation due to lack of knowledge and high yielding varieties. On this account, the KVK took up cultivation of French bean for determining the suitable variety for yield and economical benefit for the hill areas under Longleng district of Nagaland.

Materials and methods: For determination of suitable variety of frenchbean, varietal evaluation was conducted for three years where three different varieties from IIHR (Indian Institute of Horticultural Research), Bangalore, var. Arka Komal, Arka Anoop, Arka Suvidha, were taken up along with Longleng local-var. Auching as local check. Self help Groups (SHGs) Viz., Longkam and Pheineu group(Lingtak Village), Hetpu (Hukphang) HD Pangla (Yonphang) and one individual farmer and his family from Muli ward, Longleng were engaged in the trial. Land was ploughed to a fine tilth and divided into randomised block design. Ridges and furrows were prepared by ploughing after a basal dose application of FYM. Seeds were sown under optimum moisture condition on side of the ridges 2 days after two to three showers of rain. The spacing of row to row and plant to plant was maintained at 40X15cm, with a seed rate of 80 Kg/h. The recommended dose of NPK (50:75:75) was followed for cultivation.

Results: Among the four different varieties of French bean, Arka Anoop and Arka Suvidha were ready for picking in 62 days, whereas Arka Komal and Longleng local were ready in 65 days. Maximum green pod yield was recorded in Arka Anoop (6.4 t/h) followed by Arka Komal (6.1 t/h), Arka Suvidha (5.8 t/h) and Longleng local (4.6 t/h). In a survey for taste preference among the farmers, Arka Suvidha was found better compared to other varieties. Contour bunding was constructed in one of the fields and the yield was found to be more compared to the other fields. The village folks were impressed with crop yield and the short duration. Many more SHGs and individuals have taken up cultivation of French bean during subsequent years for commercial purpose and additional income.