

LARGE SCALE ADOPTION

Modified SRI

- **Details of technology:** Seed rate:-7-10 kg/ha
- Organic manure:10t/ha
- NPK: 50% of recommended dose
- Seedling age :18-20days
- No. of seedling/hill:1
- Irrigation:intermittent wetting & drying
- Weedmgmt.: Cono + HW 2times at 10 days interval

Source/ year of release: Division of Crop Production (Agronomy) ICAR Umiam, Meghalaya.

Area/ No. of beneficiaries covered in the district :

- Due to non availability of huge quantity of organic manure farmers in the district could not successfully taken up SRI resulting to non achievement of potential yield of SRI methodology.
- To tackle their problem an integrated approach using less organic manure along with chemical fertilizer with other package known as modified SRI has taken up in the year 2017 and is continuing till now so as to increase production, lesser cost of cultivation, integrated nutrient management in comparison to normal transplanting which was found to increase yield.
- An area of 30 ha by 102 farmers in the district has taken up this system.
- **The system not only increase yield and can be taken up to produce seed as the system facilitates roguing (removal of unwanted varietal admixture)**
- A cost benefit ratio of 2.14 was observed compared to normal transplanting.



Adoption of mustard variety NRCHB-101 under Zero tillage condition in Thoubal district

Mustard cultivation in Thoubal district has been practising by farmers since time immemorial using the local variety yella under zero tillage condition. After the introduction of high yielding rapeseed and mustard variety Pusa Bold M-27, TS-36, TS-38, Ragini NRCHB-101 etc. Of all the varieties base on the preference by the farmers with regard to duration, yield, harvesting & oil content, NRCHB-101 was found to be the best and like by most of the farmers. Through field days and exposure visits to the location where this variety is grown, most of the farmer prefer this variety and started growing this variety under zero tillage condition. So far out of 125 farmer beneficiaries during the last 3 years under CFLD mustard programme, 95 farmers will continue growing this variety and another 165 farmers of villagers and adjoining villages have started growing this variety by taking seeds from the CFLD farmers in an area of more than 400 ha.



Popularization of Hybrid Rice

Rice is the staple food of Manipur. Almost all the cultivable fields are under rice excepting few upland areas for kharif pulses, oilseeds and sugarcane. Before the coming of hybrid rice varieties majority of the farmers use high yielding and local indigenous rice varieties. Getting an average yield of 3.5 to 4.5 t/ha. To increase the yield of rice, the Department of Agriculture, Manipur initiated the popularization of hybrid rice in Manipur by providing seeds of hybrid rice varieties viz. K-2, Sahayadri, PAC-801, PAC-807, Arize 6444 Gold etc. Because of the fact that hybrid rice varieties produce more than 20% yield increase than HYVs. Thereafter through trial and demonstration using proper package of practices like SRI, line sowing, sparse planting of single seedling by KVK, Thoubal since 2009, the yield of rice using hybrid rice increase more than 6 t/ha. Seeing the performance of hybrid rice through training, trial, demonstration, exposure visits to hybrid rice fields farmers are now using hybrid rice varieties and occupies about 20% of the rice field by hybrid rice.



BREEDING AND SEED PRODUCTION OF WALKING CAT FISH *Clarias Magur* using BRICS Method

The Asian Catfish *Clarias magur* is an important freshwater air breathing indigenous fish, locally known as Ngakra in Manipuri. This species attains sexual maturity in 5 to 6 months and breeds during June to August. It has high consumer preference, high economic value, unique taste and good adaptability to local culture conditions. The fish is very nutritious and also consumed for therapeutic purposes and believed to boost haemoglobin level. The availability of magur seeds becomes scarce due to anthropogenic factors like pollution, use of pesticides and fertilizers in the paddy fields nearby to the river course where natural breeding of this species usually takes place. Because of its high demand and scarce in production, there is a potential for expansion of its culture practices. Various efforts have been made to breed magur fish which led to the development of a captive breeding technology based on artificial fertilization of stripped eggs using testis extracts from a killed male. However, the inability to induce voluntary spawning in captivity remained a major bottleneck to propagate magur culture in India still. Also, the declining trend of capture fisheries from the natural water bodies has ensured in scarcity of the indigenous varieties of fish viz., Magur, Climbing perch, Singhi, etc. In view of the importance of seed production of fish, as fish seed production business is profitable, promotion of scientific magur fish breeding & seed production has been selected to increase the income of farmer as well as for production / supply of quality fish seed abundantly.



Hormonal administration



Voluntary Spawning



Fertilized egg

BROOD HUSBANDRY

Mature male and females are selected from the bloodstock pond and fed with supplementary feeding containing 40% crude protein @ 2% body weight twice daily

Healthy male and female brooders of 140-180 g weight without external injuries or parasite were selected.

BREEDING TECHNIQUES/HORMONAL MANIPULATION

First dose- Ovatide @ 0.5 ml/kg body weight in both male & female above the lateral line of genital papillae.

Second dose - Oxytocin @ 40 milli IU per kg body weight to both male & female after 12 hours of ovatide injection above the lateral line on caudal peduncle.

Stocking ratio : 1 male and 1 female.

Breeders are released in the breeding tank

Courtship and spawning noticed after 26 – 28 hrs after ovatide injection.

Spawning methods: Induced voluntary spawning of mature ova & milt. Removal of brooder after 30 hrs of ovatide injection and eggs were incubated in the same spawning tub with a water flow @ 0.3 -05 liter per minute.

Spawning pool : For spawning simple container such as polystyrene boxes and plastic tub were used and flowthrough system was maintained by using siphon system from 500 L capacity overhead tank.

Fecundity: 2200 – 3800 eggs per 140-180 g body weight.

Percentage fertilization of eggs: 80 %

Hatching rate: 65 %

Hatching time: varied between 28 – 36 hrs at 28oC.

Incubation period: 24-36 hrs 10.

Survival rate: 56 % (Spawn to fry)

OUTPUT/IMPACT

The technology fetched a gross return of Rs.169000 per unit with a gross cost of Rs.64000 per unit and a net return of Rs.105000 per unit. The BC ratio was found to be 2.64



Larvae



Fry