

# Annexure ii

## **Redgram transplantation**

In Tamil Nadu, red gram is cultivated in an area of 35,800 hectare with a production of 31,300 tonnes with an average productivity of 662 kg ha<sup>-1</sup>. The factors responsible for low productivity are unfavorable weather conditions, non availability of quality seeds, improper sowing, inadequate intercultural operation, insufficient irrigation and inadequate use of fertilizers and plant protection chemicals, post harvest techniques and socio economic constraints.

To meet the demand of red gram due to increasing per capita consumption and increasing population, high priority needs to be given to increase the area and productivity. Moreover expanding area under pulses is challenging as irrigated land has expanded and more profitable high yielding cereal crops have displaced pulses production to marginal lands and consequently potential for growth of pulse area is limited. Red gram has the potential to increase the productivity and is more remunerative among all pulses.

Transplanting of red gram seedling will be the one of the agronomic measures for enhancing the productivity under irrigated condition.

## **Transplanting technologies:**

- Select only long duration redgram varieties
- Transplant within the month of August either under rainfed condition or under irrigated condition
- Select poly bag with a size of 6x4 inches and 200 micron thickness
- Fill the poly bag with native soil: Sand: FYM @1:1:1 and put 3-4 holes in the bottom to avoid water stagnation

- Soak the seeds in 0.2% Calcium chloride for one hour and dry it under shade for 7 hours to harden the seeds
- Treat the hardened seeds with *T. viride* @ 4g/kg and 100 g Rhizobium and 100 g phosphobacterium. Sow the seeds @2/poly bag at 1 cm depth
- Sow the seeds in polybags 30-45 days prior to transplanting
- Plough the field deeply to get fine tilth followed by 2-3 harrowings at 3 weeks prior to transplanting
- In medium to deep soils for raising long duration varieties, dig 15 sqcm pits at 5' X 3' for pure crops and 6' x 3' for intercropping under irrigated condition. In rainfed condition dig the pits at a spacing of 5'x3'. For short duration varieties dig 15 sq cm pits at 3' x 2' spacing.
- Under water logging condition, form furrows before digging pits
- Apply inorganic fertilizers @ 25:50:25 kg NPK /ha at 20-30 days after planting as urea, DAP and potash around the seedlings
- Apply ZnSO<sub>4</sub> @ 25 kg/ ha as basal along with FYM or sand
- Nip (removal of top 5 cm) the plants at 20 – 30 days after planting to arrest the terminal growth
- Spray planofix @ 0.5 ml/litre to control flower dropping

### **Refinement studies**

Raising seedlings in poly bags is laborious which requires huge quantity of media. Under such a situation, growing red gram seedlings in protrays reduce the media quantity and it is easy to handle also.

Since, red gram is a low yielding crop, a suitable combination of plant population and nutrient levels will enhance the productivity and quality of red gram. Poor plant population and nutrient deficiencies are considered as important factors that pull down the productivity. Hence, in order to improve the productivity of transplanted red gram, refinement study is undertaken with medium duration variety-CO(Rg)7 under drip fertigation levels and foliar spraying of growth retardants. Optimum drip fertigation level will enhance the growth and yield of transplanted red gram with considerable water saving. Further foliar application will reduce the vegetative growth, induce the synchronized flowering and enhancing pod filling and grain yield.

## I. Automatic Weather Station

### Current status of the AWS installed in 385 Block of Tamil Nadu under NADP schemes

#### a. Installation details

| Phase          | Title  | Status  |
|----------------|--|---|
| NADP Phase I   | Establishment of Automatic Weather Stations in Tamil Nadu  | Installed 224 AWS and handed over to DoA by 31.3.2015   |
| NADP Phase II  | Expansion of Automatic Weather Station network in 73 blocks of Tamil Nadu-Phase II under NADP 2011-12  | The installation of both phase II (73 AWS) and Phase III (88 AWS) were completed successfully. These 161 AWS were merged in to Tamil Nadu Agricultural Weather Network (TAWN) along with Phase I (224 AWS), totally 385 AWS in every block of Tamil Nadu. The stocks were physically handed over to the DoA on 31.3.2015. |
| NADP Phase III | Expansion of Automatic Weather Station network in 88 blocks of Tamil Nadu-Phase III under NADP 2012-13 |   |

- All the 385 AWS have been handed over to Dept. of Agriculture by 31.3.2015. Now TNAU is maintaining the server and providing technical support.
- Free warranty period of Phase I – 224 AWS was ended by 2013 and AMC was paid continuously up to 2015, then due to lack of funds AMC was not paid properly. Free warranty period of NADP phase II & III – 161 AWS also ended on 31.03.2017. Due to want of funds, AMC could not be effected for all the 385 AWS.

- During the warranty period, about 57 theft and damaged sites all over Tamil Nadu were replaced with new one by the suppliers without any charges till 2016. Still the damage and thefts are go on continuing in both old theft locations and new locations. Hence, the damage and theft are continuing, the suppliers have not done any replacement after 2016 and now requesting funds for replacement.
- Now, many of the land owners have requested to shift the AWS to new locations.

#### **b. Current status**

- Out of 385, about 70 AWS are working and sending data to the TNAU server. About 130 AWS have been shut down due to expiry of batteries, 85 sites have minor repairs in sensors and about 100 AWS are completely spoiled due to theft and damages by trespassers and animals. The 100 AWS in operation are also require changing of new batteries.
- As per the 84<sup>th</sup> SWC proceedings, ACRC is sending available AWS data to the Director of Agriculture and Commissioner of Revenue and Disaster Management from 24.09.2019 on daily basis.
- Being a electronic instrument, lack of AMC, dust and bee comps on the sensors resulted in erratic readings. Many of the AWS batteries were end of life, as they also older than five years.
- With reference to the APC review meeting proceedings held at the Secretariat on 9.10.19 and follow up review meeting held at FC&RI, Mettupalayam, a ground truth survey of all the AWS in 385 block is in progress to collect exact status of AWS with two teams and about 360 stations have been completed so far.
- The exact status and estimate for the rectification of all the 385 will be presented by the Director, Crop Management to the APC during SWC review on 26.11.19.