Climate resilient farming for women farmers: year-round chili production using ring method

Background:

Chili production can bring great value for homestead farm land utilization particularly for women in climate stress areas. Chili farming was identified as potential sub-sector to empower women in riverine and cyclone affected areas. It can tolerate salinity level up to 3 - 10 dS m-1 at fruiting stage (Amin et al., 2011). So, there is great potential to enhance chili production in coastal saline area. As chili is susceptible to drought and flood conditions it needs special techniques to grow in a risk freeway at homestead. It was identified as an important spice for daily consumption and a cash crop for women**.**

Homesteads are often underutilized with lack of appropriate farming of vegetables, spices, and fruits during flooding and waterlogging period in low-lying area. This has special significance for resource-poor households who mainly depended on homestead farm for regular source of vegetables. Growing vegetables in the field during monsoon season is very difficult as most of the vegetable crops cannot tolerate excessive high soil moisture and waterlogging. Constructing a cement ring based semi-permanent structure for vegetable planting was found as a suitable option for the flood and salinity prone areas where water-logging conditions prolonged like Kurigram and Satkhira district of Bangladesh. Some essential spices are needed every day like year-ound chili. Therefore, year-round farming option for any adverse location is urgent.

Under the EmPower Progrmme of UN Women and UN Environment, Practical Action – one of the responsible parties of EmPower have provided capacity building training to women farmer, women led CSOs, and the most vulnerable women on the gender responsive climate resilient agriculture with aims to enhance their knowledge on climate adaptive crop variety, marketing and early warning and digital extension service. WIN Incorporate as a private entity and the national agricultural help desk – Krishi Call Centre was in this consortium.

Purpose:

Considering women's special interest for growing chili both for home consumption and own income (high value crop) women farmers were supported on special farming skills. Weather forecast, market and digital agro-advisory support were of high demand in such locations. It was considered as an urgent need to support women farmers in chili farming special techniques for flood and waterlogged areas.

The Innovation:

Ring method is to overcome water-logging and salinity challenges in growing chili at homestead or in the field. By adjusting ring-height above flood water farmers can protect their plant. Pitcher irrigation technique was also installed for such ring farming beds to supply water in saline prone and drought prone areas. This technique requires more care compared to raised bed farming. The nutrient source and root spreading source is limited in this method. Therefore, 200-250 gm compost application in 15-20 days' interval is important for good yield. Mulching in dry season to increase water use efficiency. To put sands or bricks in lower part of the ring is important to ensuring proper drainage in monsoon season. Regular hand picking of insect and pest affected leaves is important to get healthy plants.

Figure 1 Chili seedling transplanting in Cement Ring

The result:

In 4 upazilas, there were 100 farmers started testing this technique where on an average one ring was used by each farmer and the primary growth of the spices were very satisfactory. Farmers kept provision of using two to three rings vertically where flood water reached higher. Cement ring, soil and compost were the main materials. In drought prone and saline prone areas, where irrigation is difficult to apply regularly, farmers could install pitcher irrigation method using earthen pots. Our support period was between November to December 2021 for this technique therefore it was the lesson of a particular part of the year. Mainly the poor women were engaged in growing chili in homestead and its vicinity. The cultivable other spices in ring method included vegetables sweet gourd, white gourd, cucumber, water gourd, sponge gourd, long-yard bean, Indian spinach, tomato, cabbage, country bean and bitter gourd. However, trellis must install for vine type vegetables.

The initial growth of the spices was found satisfactory. Farmers will get good yield and compare to no production in water-logged areas in lean season. Major investments on this process were cement ring, soil and compost which price was 300 BDT for protecting crops from below one feet water-logged condition. It was closer to their house where women farmers could play a vital role to manage the technique.

Lessons: During the cultivation main lessons learnt were:

- Regular watering and composting are important for proper growth rate of the plants
- Ring method is similar to tower method which used plastic instead of cement ring. Ring method needs special attention and care in climate shocks.
- The cost per cement ring (BDT 300) is less compared to similar plastic and bamboo-based tower (BDT 525). The use of pesticide in this type of garden is very less compared to other farming.
- This chili variety is alternative of common chili and farmers got good price when supply of chili interrupted from neighboring districts mainly in monsoon season.

Figure 2 Irrigation in Chili Plants

- This method appeared to be appropriate solution in regular water-logged and recurrent flood affected areas.
- Installing two three cement rings are bit costly but considering a permanent structure farmer could be interested to invest.

Way Forward:

Climatic shocks adversely affect in coastal and other climate shock prone area where erratic and uncertain heavy rainfall occurs frequently. The people living in that region exhausted with inundation in every year. Ring method could be an effective and better option to produce vegetables during monsoon. It is also a good system of vegetable production in winter. This also

could be treated as women friendly technology due to its feasibility in homestead areas. However, there is scope for further operational pilots using large size ring and length of ring with short durable high value crops such as capsicum, cherry tomato, papaya etc. to search the commercial possibility of ring method.

Reference:

Kuddus, M.A., Alam, M.J., Datta, G.C., Miah, M.A., Sarker, A.K. and Sunny, M.A.R. 2021. Climate resilience technology for year round vegetable production in northeastern Bangladesh. Int. J. Agril. Res. Innov. Tech. 11(1): 29-36.