

Custom hiring Center to link Farm Mechanization among the Small-Marginal farmers of Meghalaya

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Introduction:

Indian Agriculture is undergoing much shift since the beginning; transformation from the use of muscle power to mechanical power is one of them. But farm mechanization in northeast India is still far behind compared to the other parts of the country. The farmers in many parts of this region are still accustomed to small hand tools and practicing agricultural exercises manually. Using mechanical power is having a direct bearing on crop productivity. But some farm implements are very costly which becomes a hindrance to keep and use by many small and marginal farmers of the country. Hence, utilizing the many farm implements by a group of farmers on a need-based custom hiring center approach has been realizing the importance. A custom hiring center is a center that gives a group of farmer easy access to farm implements and machinery on hired basis. The idea of a custom hiring center is to help farmers to reduce labor costs using implements and drudgery in farming. This enables farmers to take up farming activities on time; it is a cost-saving approach and thereby increases productivity.

Importance of Custom hiring Center:

1. Reduce the drudgery in farming
2. To make available various farm machinery/equipment to small and marginal farmers.
3. To improve mechanization in villages with low farm power availability.
4. To reduce the cost of production.
5. To provide hiring services for various agricultural implements applied for different operations.

The present study under Farmer FIRST Programme of ICAR Research Complex for NEH Region was intervened in Margnar cluster, Ri-Bhoi district, Meghalaya. The cluster is comprises total 10 number of villages namely sarikushi, Lalumpam, purangang, Borgang, Mawphrew, Nongagang, Nalapara, Borkhatsari, Umtham and Mawtnum. Agriculture as an occupation has been taken up from one generation to the next, majority belongs to the small and marginal category. In Kharif season, farmers of these villages mainly grow paddy, and apart from paddy cultivation as a mainstay they are also engaged in the cultivation of different summer and winter vegetables at subsistence as well as commercial level by few. Piggery, poultry, and mushroom cultivation are also being adopted by many of the farmers of this cluster. But, an assessment of the existing situation regarding farm mechanization stated that the scenario is very deprived, farmers were involved in doing many activities either manually or using small hand tools like a sickle, spade, etc. But farmers are using a sprayer to use pesticides or insecticides. Operating field activities with farm implements like paddy transplanter, power tiller, paddy thresher, rice mill, etc. have never been experienced before by the farmers of this cluster. Table 1 is depicting about the existing situation of farm mechanization in the farms of the Margnar cluster.

Table 1; Existing mechanization scenario in the Margnar cluster;

| Crop | Operations | Existing Practices followed by farmers |
|------------------------------|---------------------|--|
| Paddy | Seedbed preparation | Manual |
| | Sowing/planting | Manual |
| | Irrigation | Rainwater, stream |
| | Weeding | Manual |
| | Plant protection | Sprayer |
| | Harvesting | Manual |
| | Threshing | Manual |
| Winter and summer vegetables | Seedbed preparation | Manual |
| | Sowing/ planting | Manual |
| | Irrigation | Rainwater, stream |
| | Weeding | Manual |
| | Plant protection | Sprayer |
| | Harvesting | Manual |

Realization of Custom hiring Centre (CHC) Set-up:

The people in this area are heavily inclined towards traditional practices, comfortable with subsistence farming. Secondly, farm mechanization is beyond their reach due to their poor economic condition and low affordability. To break this long-held situation and to bring farm mechanization within their reach, ICAR RC for NEH Region, Umiam under Farmers FIRST Programme found it necessary to sensitize the farmers about the use of different farm implements in many farming practices. In this regard, the project team decided to set up a custom hiring center instead of distributing the implements at the individual level. This led to the establishment of a custom hiring center at Purangang village, Margnar cluster in the year 2021. The custom hiring center shall uphold the concept of Community participation and efficient utilization of resources that are available in the villages including those resources which shall be provided by ICAR RC for NEH Region, Umiam. Total 85 numbers of farmers are utilizing many implements from 10 no. of villages in that cluster.

An Executive Committee of three members was formed and this Executive body is responsible to facilitate/ look after the functioning of the center. The revenue generated from custom hiring is deposited in a savings account opened by the Chairman of Purangang custom hiring center and is meant for repair and maintenance of the same. Different farm implements available at Custom Hiring Center, Purangang, and their uses are listed below:

Table 2; Distributed Farm implements to Custom Hiring Centre

| Sl No. | Farm implement | Number | Uses |
|--------|------------------------------|--------|--|
| 1 | Conoweeder | 15 | To remove weeds between rows of paddy crops efficiently. |
| 2 | Adjustable row marker | 8 | For marking rows at different spacing according to the crops to be sown. |
| 3 | Fruit harvester (crown type) | 15 | To harvest the fruits from trees |
| 4 | Fruit harvester (cut type) | 5 | To harvest the fruits from trees |

| | | | |
|----|-----------------------|----|--|
| 5 | Garden rake | 15 | To collect leaves, hay, grass, etc also use for loosening the soil. |
| 6 | Hand fork | 7 | For digging up weeds, loosening hardened soil. |
| 7 | U. Blade | 5 | For weeding operation |
| 8 | Mounted Maize Sheller | 5 | To separate the grain from cobs. |
| 9 | SRI row marker | 8 | Help in transplanting paddy crops at 10x10 inches spacing. |
| 10 | Seed drill | 5 | It sows seeds for crops by positioning them in the soil and burying them to a specific depth |
| 11 | Trolley | 10 | To carry seeds, crops, fertilizers, and other materials utilized during farming |
| 12 | Wheel hoe | 10 | For weeding and intercultural operations in vegetables and other crops sown in rows |
| 13 | Rice mill | 1 | To remove hulls and barns from paddy grains to produce polished rice. |
| 14 | Brushcutter | 2 | To trim weeds, small trees, and other foliage |
| 15 | Paddy thresher | 4 | For threshing of paddy crop. |

Economic Efficiency:

Hiring charges of implements are fixed by members of the custom hiring center at the village level. The total revenue generated so far has been recorded to be Rs. 25,0,63/-. This revenue generated is deposited in a savings bank account and is used as a maintenance and repairing fee for the tools and equipment. Beneficiary members are also planning to invest in new pieces of machinery once the amount generated is sufficient enough.



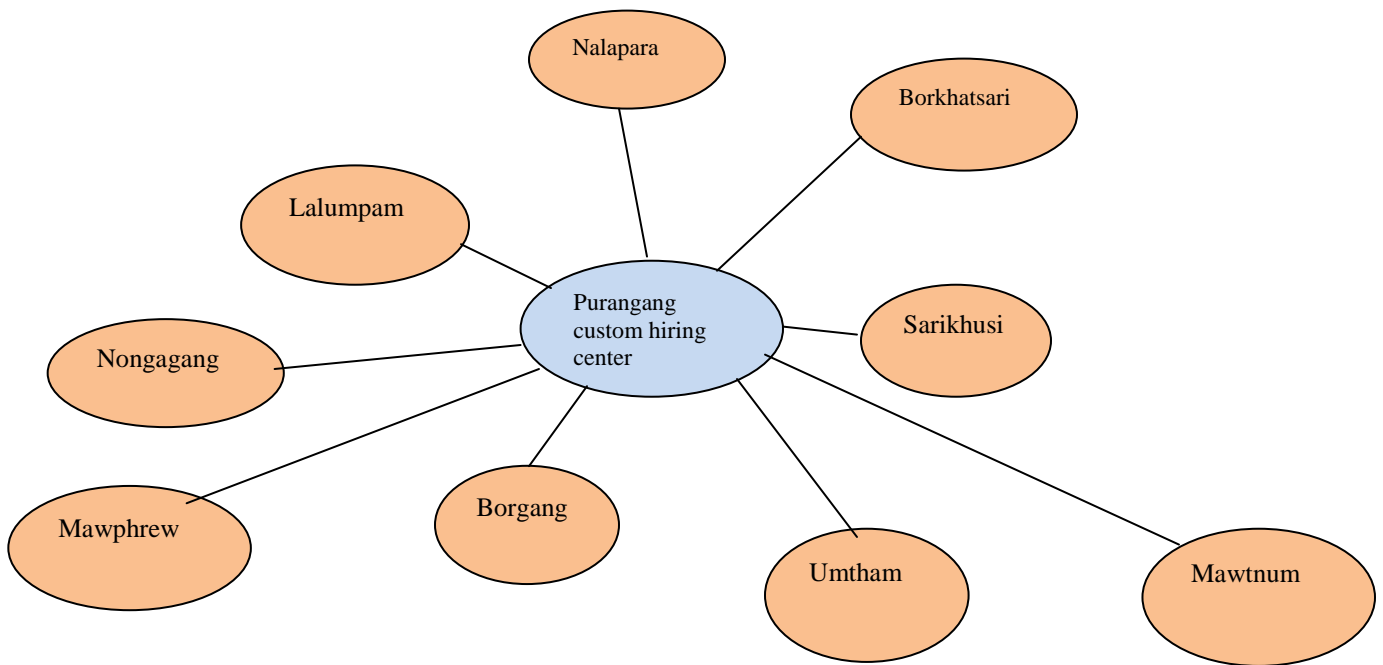
(a) Paddy field in Margnar cluster, (b) Demonstration on Rice Mill use

As an example Economic utility of using Rice mill:

In Margnar rice is grown in Kharif season and during this season the lowlands of Margnarturn into a picturesque sight of lush green paddy fields. Harvesting is carried out during the winter months of November and December. Harvesting, threshing are mostly carried out manually. The milling process for the majority is also done manually while some go to the market or any nearby place where rice mill is

available. Among the listed implements which were distributed Rice mill is one of the most useful among the beneficiaries. Farmers FIRST Project procured a mini rice mill (capacity $\geq 150\text{kg/hr}$) with a milling capacity of more than 150 kg per hour. The introduction of a mini rice mill in the village has benefited several rice growers in and around the area. Member farmers of CHC have fixed a very nominal price for milling i.e. Rs. 15/- per tin, whereas in the local market this charge ranges between Rs. 20 to 25/- per tin. At the local level farmers are using tin as a measuring unit for paddy; one tin carries 10.8 kg of paddy. By providing milling service through the rice mill to beneficiary farmers of CHC the total amount Rs. 11,280.00 is being generated to date since February, last year. In fact, by seeing and realizing the importance of this user-friendly technology few farmers from Margnar clusters have purchased at the individual level.

Dissemination Network of CHC:



The custom hiring center is situated at Purangang village, which is almost in a center from other villages. The village namely sarikushi, borgang, Nalapara, Lalumpam are nearby from the CHC and the distance is approx. 5 to 7 km. The beneficiaries from these villages can easily access them whenever they require. But the villagers from Mawphrew, Mawnum are not able to access the utility properly as the distance is more, and as a result, transportation becomes a problem for those villagers.



Fig., c. Demonstration of power weeder d. Demonstration on Paddy Thresher Use

The establishment of a custom hiring center has proved valuable to the farmers of the area in the following ways:

1. Access to farm implements: In marginal cluster, mechanical power is beyond the reach of small and marginal farmers owing to their poor economic conditions. The custom hiring center has made farm implements within their reach without affecting their pockets much.
2. Timely availability: As several implements for weeding such as conoweeder, hand fork, garden rake, wheel hoe, and brush cutter are available at CHC, farmers can do timely use of these implements without any hassle.
3. Time-saving: Traditional farming practices are laborious work. It requires hard work and is time-consuming. The availability of several agricultural implements in the center has helped in making farming operations a little less laborious and consumes less time; farmers can devote more productive time to other farming activities.
4. Reduce labor cost: Labour cost is the major cost (nearly 60%) of production in the Hill agriculture system. CHC has also helped reduce labor costs to some extent for the beneficiary farmers.
5. Transfer of technology: The mini rice mill made available in the center showed to be the most utilized by the farmers. After a few weeks of its availability in the center, several farmers from the different villages of Margnar cluster adopted and procured one for their use.

Conclusion:

Custom hiring center under Farmers FIRST programme of ICAR Research Complex for NEH Region, Umiam is further trying to procure more farm implements for its beneficiary farmers scattered over the Margnar cluster. This centre is also attempting to demonstrate the variety of implements and scientists are giving training on the use of same so that farmers can use those implements economically at their level and increases the productivity and income in returns.