Jalkund: The Rainwater Harvesting Technology for Doubling Farmers Income

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ABSTRACT

It is an irony that the state like Arunachal Pradesh known for its high precipitation rate, suffers from water scarcity during post-rainy season (November to April). Unavailability of adequate amount of water during the dry season is a serious problem for successful farming. This problem can be minimized by rainwater harvesting and its judicious use for crop production. *Jalkund* is a micro rain water harvesting structure and is found suitable for the farmers residing in the hill top for small scale agricultural activities. The *Jalkund* using Low Density Polyethylene (LDPE) of 250 or 500 micron films revolutionize the concept in water management which dramatically restricts the seepage losses at a reasonable cost enabling life saving irrigation. Harvested water can be used for cultivating high value vegetable crops such as brinjal, chilly, tomato, radish, coriander, cowpea etc. Stored water can also be utilized for animal husbandry activities, Piggery, Poultry and Duckery. Site for *Jalkund* is selected considering soil type, depth, the purpose for which water to be used etc. The pond is excavated in dimension of 6 m x 4 m x 1.5 m selected site before onset of monsoon. The inner walls including bottom of the pond are to be properly smoothened by plastering with mixture of clay and cow dung in the ration of 5:1. After clay plastering, about 3-5 cm thick cushioning is to be done with locally and easily available dry pine leaf, toko leaves, paddy strae @ 2 to 3 kg/m^2 on walls and bottom. It is followed by laying down of 250 m LDPE black agri film or silpaulin. About 25 X 25 cm trench is to be dug all around the pond and 25 cm outer edge. *Jalkund* is needed to be covered with thatch (5-8 cm thick) made of locally available bamboo and grasses to reduce evaporation losses up to 80 % in comparison to the control *Jalkund* without any cover. The *Jalkund* needs to be properly protected using bamboo fencing with 4 feet. The cost of establishment of *Jalkund* of 36,000 litres of water storing capacity is Rs. 18,600. Approximate area which can be irrigated through drip irrigation is 0.10 to 0.15 ha. The life of *Jalkund* is 10 years. Total 70 *Jalkunds* are distributed to the farmers of West Siang, Lower Siang, Anjaw, Upper Subansiri and Longding districts of Arunachal Pradesh under NAIP, NICRA (Research) and TSP projects. Farmers generally prefer the cultivation of tomato and brinjal using Jalkund technology. In the study, for first 3 years, the total expenditure incurred was Rs. 22,600 including the cost of Jalkund. The total income was Rs. 44,600 and net profit was Rs. 45,200 (C:B: 1:2). Thus, cultivation of vegetables using the rainwater harvesting (Jalkund) technology is one of the solutions that could increase the production as well as productivity of vegetables crops in this region.

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