

Rejuvenating Lives

Chronicles of agricultural transformation on the fields of small and marginal farmers

Drip Irrigation Technology *Achieving more using less*

Introduction

One of the fundamental aspects and bedrock of Acton for Social Advancement's (ASA's) development work is the focus on the water resources development (WRD) program. The WRD program with the main target of irrigation provision to small landholders is centered on the creation of minor irrigation facilities. The promotion of drip irrigation is part of this focus. Mandla in eastern Madhya Pradesh is a major operation area of ASA, where it has worked on providing access drip irrigation sets to mainly small tribal cultivators for better and effective water management and enhanced farm output.

The Specifics

Agriculture occupies a vital place in the Indian economy since more than half the workforce is dependent on it to earn its living. The changing rainfall pattern as a consequence of climate change and paucity of water for irrigation has a detrimental effect on agricultural production. Adding to this stress is the inefficient use of water in agriculture in the face of water shortage. This has severe consequences for the water tables in an area. ASA from its inception has had a programmatic focus on water resources development under which it works on promoting minor irrigation facilities for small landholders. Adopting a 360-degree approach, ASA focuses on both the supply as well as demand-side irrigation concerns. Irrigation expansion through stop dams, lift irrigation system, farm ponds and dug wells addresses the supply-side issues and for redressal of the supply side concerns, it works on promoting water-saving irrigation devices such as drip, sprinkler and on-farm water management practices.

ASA promotes drip in under convergence mode by tapping government programs such as National Mission on Micro Irrigation (NMMI) and National Horticulture Mission (NHM) and Rashtriya Krishi Vikas Yojna. Mandla district, which has a predominant farming dependent tribal population that is confronted with irrigation constraints and sub-optimal farming. ASA has been working on not only irrigation provision to the small tribal farmers here but also works on drip irrigation adoption so that the judicious use of water enables the farmers to save water, efforts, energy, and money on fertilizers and pesticides along with better agricultural outcomes.

Benefits

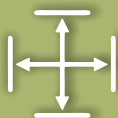
Drip irrigation is one of the most efficient water and nutrient conveyance mechanism which is used in agriculture. It provides water and nutrients directly to the plant's root zone in the right quantity and time, which results in the optimal growth of the crops. A drip set consists of pipes called dripper-lines with smaller drippers. The water and nutrient are transported through dripper-lines and finally reach a crop root's zone through the drippers.

Figures at a Glance

*As on 31st March 2020



20 drip sets provided



08 hectares irrigated



Advantages of Drip Irrigation

- *Much higher yields as compared to traditional irrigation method*
- *Consistent growth of crops, which are healthier and mature fast*
- *Early maturity of crops results in higher and quicker returns on investment*
- *Complete utilization of the land as drip irrigates uniformly irrespective of topography and soil types*
- *Large water saving since there is no evaporation, run-off or waste*
- *Much efficient use of fertilizer*
- *Cost borne on fertilizers and labor is reduced*
- *Easily replicable*

Trickling down the gains to the smallest farmer

Sonkesari Nanda, a 36-year-old happy drip set user from Mohaniya Patpara village in Mandla district recollects the days of 2012 when he came in contact with ASA and was eagerly looking for ways to enhance production on his 3.5 acres of farmland. He says that ASA staff took a keen interest in augmenting the farm status of small farmers in the area and continuously shared their knowledge with them. In one such interaction, ASA staff introduced the idea of drip irrigation to Sonkesari. The technology caught his fancy once he heard the numerous benefits it had to offer. He agreed to get associated with the drip technology component of ASA and a drip set was installed by ASA in 2012, which covered 25 decimals of his farmland. A 1,000-liter tank was provided as part of the drip set. Sonkesari started growing tomatoes and bitter gourds, the sale of which provided him decent income. Seeing the beneficial impacts of the drip set up close, he expanded the drip irrigation to 1 acre and currently, has scaled it to 2 acres. Today, he earns INR 1,20,000/- by cultivating vegetables alone using drip technology, which is the major part of his total INR 1,50,000/- annual agricultural income. He has used his earnings to build a pukka house and purchased a 25 decimal plot. Bolstered by the impacts of drip technology, Sonkesari has adopted other improved farming techniques such as mulching on 50 decimals of his land for improved results.

Jaggobai Khushiram, a marginal farmer from Mohaniya Patpara village in Mandla district witnessing the beneficial impacts of drip irrigation around her approached ASA for implementing the technology on her farm. Her interest in modern agricultural techniques was a result of her association with ASA run Krishak Pathshala, wherein ASA disseminated improved farming practices among the participating farmers. In 2015, ASA facilitated the provision of a drip set on Jaggobai's farm through the District Horticulture Department over 1 acre of her total 2.5-acre farmland. She undertook vegetable cultivation which earned her INR. 45,000/- per annum. Encouraged with the results of higher production through low water use, she has extended the drip based vegetable cultivation comprising eggplants, beans, and tomatoes to the entire 2.5 acres through all the seasons, which earns her INR 1,25,000/- annually. This is way higher than the pre drip set days when she cultivated paddy, wheat and chickpeas bringing her just INR 25,000/- annually. Jaggobai has today set her eyes on bringing new varieties of vegetables along with mechanization and improved practices such as poly-house farming. ASA has helped her fulfill her aspirations for progress by helping her to undertake the technique of mulching on 1 acre of her land, which has improved her vegetable production by 25-30 percent.



Trickling down the gains to the smallest farmer

Agnibai Dura Patre, native farmer of Bakchheradona village in Mandla district is another satisfied adopter deriving the gains of the drip technology. She shares that before the drip installation, she and her husband would be away from their village most part of the year employed as labor in the construction industry under trying circumstances. Highly dissatisfied by their circumstances, they longed to be back home and pursue year-long farming so that they could get to stay with their family. In 2013, Agnibai got associated with ASA as the organization helped her repair her dug well and encouraged her to take up vegetable cultivation on 3 acres of land through proper guidance, which earned her INR 25,000/-. However, the erratic electricity supply meant that she was not able to pump water from the dug well as and when she wanted. So, ASA introduced drip irrigation with a 5,000 liters tanks on Agnibai's farm in 2014 farm covering an area of 40 decimals in which she grew vegetables. This enabled her to properly irrigate some area on her farm during power cut. At present, she has expanded the area under drip irrigation to 1 acre and earns INR 50,000/- by growing and selling vegetables in the local market. She aspires to grow high-value vegetables such as green bell and jackfruit on her field along with taking up poly-house vegetable cultivation to improve her farm income.

“ASA motivated me to take up drip irrigation on 25 decimal land in 2015, which enabled me to cultivate vegetables with high output. I was encouraged with the results and decide to expand the drip based farming to 1 acre, which brings home INR 75,000/- in a year. Besides, I am able to generate INR 25,000/- by growing paddy and wheat on the remaining 2 acres of land. Thanks to drip, from the savings I bought tools such as power tiller and have undertaken land leveling on my farm for increased fertility and production. I intend to undertake organic vegetable cultivation and grow vegetables such as oyster mushroom to further increase my farm income”,

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