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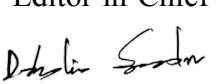
Editorial

Drip irrigation increases a farmer's income by enhancing yield and reducing operational costs. Drip Irrigation technique involves the slow application of water to the soil through a network of pipes, emitters, and valves, delivering water directly to the roots of the plants. This approach allows for precise and controlled delivery of water, which is particularly useful in areas with limited water resources, such as India. Water scarcity is a major problem in India, with many of the country's population dependent on agriculture for their livelihoods. With an increasing population and growing urbanization, the water demand is steadily increasing, leading to a significant strain on the country's water resources. Drip irrigation can help address this issue by using water more efficiently, reducing waste, and increasing crop yields. Water stress during critical growth stages significantly affects the yield of horticultural crops. Vegetable crops, particularly, are highly sensitive to water stress, and timely irrigation is essential for optimal yield. The impact of moisture stress varies, affecting seed germination, plant growth, and the formation of pegs, ultimately leading to poor-quality produce. Therefore, providing irrigation at the right time is crucial for enhancing the overall quality of the produce. However, increasing water shortages present major challenges for farmers trying to ensure adequate water supply for crops grown under the flood irrigation system. Drip irrigation effectively addresses crop water stress even amid increasing water scarcity. Flood irrigation can hinder the productivity of vegetable crops. In contrast, drip irrigation supplies water in precise quantities, preventing over-irrigation and minimizing water loss. Research data indicates that horticultural crops irrigated through drip irrigation can achieve 30–50 percent higher yields while conserving 40–60 percent more water compared to flood irrigation. Additionally, drip irrigation contributes to reducing cultivation costs. Owing to its numerous benefits and government-backed subsidies, the area under drip irrigation has expanded significantly, from 70,590 hectares in 1991-92 to 5.97 million hectares in 2019-20. Research on high-value crops reveals that drip irrigation can save 30–40 percent of water, increase productivity by 30–45 percent, and lower cultivation costs than flood irrigation. Some findings highlight drip irrigation as an efficient, cost-effective solution for improving crop productivity while conserving water resources. Many studies have explored the effects of drip irrigation on crop cultivation, but large-scale, reliable research, specifically on horticultural crops, is limited. Farmers face substantial difficulties with conventional irrigation methods, as ensuring a regular water supply for horticultural crops often leads to water stress. Despite using recommended inputs to enhance yield, they are frequently unable to achieve the desired productivity due to inconsistent water availability. Although experimental studies indicate that drip irrigation can improve water productivity for horticultural crops, these results often diverge significantly from field-level findings, making them less reliable for formulating policy decisions. Furthermore, there has been little research into the economic viability of drip irrigation for short-duration crops. As a result, there is a need for large-sample studies that investigate the water-saving potential of drip irrigation and its economic feasibility. However, the point should be noted that while drip irrigation can substantially increase a farmer's income, it is unlikely to double it on its own. Income growth depends on several factors, and doubling it generally requires a combination of improved technology with efficient farming methods, strategic crop choices, and access to markets. For drip irrigation to contribute significantly to doubling a farmer's income, it must be paired with other strategic improvements.

Editor-in-Chief



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