GOVERNMENT OF THE PUNJAB
Agriculture Department

OFWM+
PIPIP
PUNJAB IRRIGATED-AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT

Growing Off-Season Vegetables
With
DRIP-TUNNEL SYSTEM

Mr. Rizwan
chak No. 39/ 12-L,
Tehsil Chichawatni
District Sahiwal

BENEFITS

- WATER SAVING BY 50%
- REDUCTION IN FERTILIZER USE UPTO 45%
- REDUCTION IN PRODUCTION COST UPTO 35%
- YIELD INCREASE UPTO 100%
- EARLY MATURITY OF CROP
- BETTER PRODUCE QUALITY
- CROP DIVERSIFICATION
- SUITABLE FOR UNEVEN TOPOGRAPHY

Nature has endowed the country with diverse climate, fertile land, and one of the contiguous canal irrigation systems of the world. These blessings enable the farmers to cultivate various crops throughout the year, including wheat, cotton, rice, maize, sugarcane etc. Besides major crops, more than 36 kinds of vegetables are also grown in a year. Growing vegetables are of vital importance due to their high nutritional value. Rapid expansion in population and diminishing water resources now demand crop diversification in terms of shifting from high delta (rice & sugarcane) to low delta crops like fruits and vegetables for earning foreign exchange through their export.

Directorate General Agriculture
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DRIP IRRIGATION SUCCESS STORY

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In Pakistan, vegetables are grown in different eco-systems from rain fed to irrigated and low output to high output systems such as plastic houses and poly tunnels. Although average yield of vegetables in the country is low and there exist a wide gap between the yield of progressive and conventional growers, even then it has been documented that area and production of vegetables has increased during the past ten years.

The Government of Punjab has launched "Punjab Irrigated-agriculture Productivity Improvement Project (PIPIP)" with financial assistance of the World Bank that aims at productivity enhancement of irrigated agriculture through promotion of modern irrigation technologies. Drip irrigation is one of such technologies that has enormous potential for minimizing production cost by moderating input use of water, fertilizer, pesticides etc. Drip systems have been installed on about 10,000 hectares (25,000 acres) under this project all over the province for different crops including vegetables.

Mr. Rizwan is a progressive vegetable grower of chak No.39/12-L in tehsil Chichawatni of district Sahiwal. He has installed drip irrigation system on 4.5 acres (1.8 ha) to grow vegetables under poly tunnels. He narrates his story of converting from conventional to tunnel farming as:

"To grow off-season vegetables with tunnel farming for getting higher incomes was my dream for which, initially I faced some problems in the form of initial high cost of setting up the basic structure for tunnels (especially high and walk in tunnels) and requirements of high fertilizer application rates, excessive use of fungicide and herbicide sprays. These collective factors posed hurdle for me in attaining higher profits through tunnel farming. Meanwhile, the On Farm Water Management (OFWM) staff approached me for installation of drip irrigation. I apprised OFWM staff about the issues being faced during tunnel farming. They motivated me to install drip irrigation system by explaining key benefits of the system in terms of water, fertilizer and pesticides savings besides yield enhancement. That was the turning point for me when I decided to install drip thereby curtailing production cost under tunnel farming".

In drip irrigation, the soil is always kept at "field capacity" which enables the crop to easily acquire required water and nutrients, and grow healthier besides each plant gets equal share of water and fertilizer. This results in uniform growth of plants and enhances quality of produces as well.

Mr. Rizwan while sharing his experience of tunnel farming with drip irrigation expressed that:

"My experience of tunnel farming with drip irrigation remained exceptionally inspiring. I have cultivated cucumber on two acres (0.8 ha) and harvested more than 700 bags per acre as compared to 600 bags with conventional tunnel farming. Being off-season crop, I am earning reasonable profit of about Rs.270,000 per acre against Rs.200,000 through gravity irrigation".

In traditional methods of irrigation, water and fertilizers are applied in large quantities but at long intervals resulting in water stress and low fertilizer use efficiency, whereas in drip irrigation, these vital inputs are applied in small quantities but more frequently to maintain optimal moisture and nutrients level in the soil. Drip irrigation is the only solution that offers such conducive environment.

Mr. Rizwan shared the benefits accrued after adopting drip irrigation as:

"Drip irrigation has been ascertained as an auspicious system for tunnel farming that vested me a complete access over water and fertigation scheduling. Turning on the valve permits me to apply water and fertilizer homogeneously to the vegetables as per their requirements, thereby minimizing losses of precious agricultural inputs. Contrary to conventional application of 10 bags of NPK, I just applied half of its quantity along with one bag of Guara. Likewise, pesticide use and labor cost have been curtailed to about 30 percent as compared to conservative tunnel farming".

Amid many advantages, drip irrigation system diminishes the risk of diseases and pest attacks by regulating humidity level in tunnels which cannot be controlled when water is applied through gravity irrigation. This innovation not only limits pesticide requirements but also upsurge yield owing to lesser disease and pest attack.