



### ICAR Short Course

## Advances in micro irrigation and fertigation technologies for enhancing crop and water productivity in water scarcity area

### 02-11 March 2022

*Department of Soil Science, COA, CSKHPKV Palampur -176062(HP)*



Land and water are the most essential requirements of any country's agricultural and economic development. Furthermore, the per capita availability of these resources in India is much less than other countries. The wide spread of conventional irrigation methods leads to loss of water through seepage, percolation and evaporation, thereby reducing water productivity. As a result, it is critical to use water more efficiently in agriculture, bring more land under irrigation, cut irrigation cost per hectare and ultimately enhance agricultural output. This can be achieved by introducing advance irrigation method like micro irrigation. Micro irrigation allows for precise water management as compared to surface irrigation. In comparison to surface irrigation, the drip irrigation saves 51 per cent of irrigation water while increasing crop output by 19 per cent. It also helps in labour savings and the optimization of soil air water relations, resulting in enhanced crop production.

Fertigation - a modern agro-technique that increases fertilizer use efficiency, minimize fertilizer application and increase return on fertilizer invested -provides an excellent opportunity to maximize yield and minimize environmental pollution. This also allows nutrient to be delivered to the root zone in a timely and efficient manner. It not only increases yield and fertilizer use efficiency but it also ensures adequate and nutrient and water availability throughout the growth season of the crop. Experiments have shown that fertigation saves 25-40 % fertilizers, reduces nutrient leaching increased B.C ratio. Since, nutrient requirements vary with crop growth stages, drip irrigation-based fertigation allows for flexible nutrient supply, adjustable as per crop growth stage.

## Objectives

- To provide advance training to the scientists of ICAR/SAUs/KVKs and improve their skills in the area of micro irrigation techniques,
- to show the trainees live demonstrations /experiments on sprinkler and drip irrigation systems, and
- to provide an opportunity to discuss and exchange ideas/knowledge sharing



## Course Content

- **Scope and importance of micro-irrigation and fertigation in water scarce areas**
- **Estimation of crop water requirements using weather models for varied climate**
- **Estimation of micro irrigation-based crop water requirements using Soil Plant Atmospheric Continuum approach**
- **Use of geospatial products for water resource management in water scarce areas**
- **Advances in micro irrigation for enhancing water productivity under soil less culture**
- **Advances in micro irrigation for enhancing water productivity of vegetable crops including hydro phonic under protected conditions**
- **Risk and uncertainty of rainfed agriculture - scope of micro irrigation**
- **Genetic manipulation for enhancing plant drought tolerance in water scarce areas**
- **Concepts and techniques of soil fertility evaluation including plant tissue analysis for enhancing water & nutrient use efficiency and fertigation scheduling**
- **Concepts and techniques of fertigation for enhancing water and nutrient use efficiency**
- **Micro irrigation and fertigation for insect pest and disease management**
- **Food quality and nutritional aspects of farm produce with irrigation practices**

## Faculty

The faculty for the course will consist of scientists / teachers experienced in micro irrigation and fertigation-based studies

### About CSKHPKV Palampur

Himachal Pradesh Krishi Vishvavidyalaya (currently Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya) was established on 1<sup>st</sup> November, 1978. The University has been given the mandate for imparting education in agriculture and other allied branches as well as advanced learning & research and undertaking extension activities, especially to the rural people of Himachal Pradesh. The University has four constituent colleges. The College of Agriculture, Dr.G.C.Negi College of Veterinary & Animal Science, the College of Community Science and the College of Basic Sciences. The Directorate of Research coordinates research in the field of agriculture, veterinary and animal sciences, home science and basic sciences. The Directorate of Extension Education shares the responsibility of various extension education programmes in close collaboration with the State Departments of Agriculture, Animal Husbandry, Fisheries and other concerned departments and institutions.



### About Palampur

Palampur is a beautiful hill station situated in the foothills of Dhauladhar mountain range. It is known for its tea gardens, yielding tea with wonderful flavour. It is also famous for temple tourism since it is surrounded by Lord Shiva temple; Mata Chamunda Devi, Mata Brijashawari, Jawala Ji temples, etc. The famous Macloedganj (Dharamshala) and S.Shoba Singh Art Gallery are located at a distance of 45 and 10 km, respectively. The mean maximum and minimum temperature, during March is around 25 and 15<sup>0</sup>C, respectively. The participants are requested to carry light woolen clothing and umbrella, please.

### Eligibility of participants

This short course is meant for active researcher/ teachers having 2 years research experience in ICAR Institutes/ State AUs/CAU/ Agricultural faculty of AMU, BHU, Vishwa Bharti and Nagaland University preferably in Soil Science/ Agronomy/Horticulture/ Vegetable Sci/ Plant protection/ crop improvement etc in the cadre of Assistant Professor or equivalent and above. Also, the participant should be Master in Agriculture having knowledge of computers. A total of 25 candidates will be selected for this course. The selection of candidate will be made by Screening Committee as per available guidelines of ICAR.

## How to Apply

The participants' should apply for the short course through the online Capacity building programme Vortal [www.cbp.icar.gov.in](http://www.cbp.icar.gov.in) or under the 'Quick links' - Capacity Building Programme at [www.icar.org.in](http://www.icar.org.in). After filling the online application the participant has to take the print out of the application/registration form and get it approved by the competent authority of the respective organization. Finally, the scanned copy of the application has to be uploaded in the CBP portal. In case of any difficulty, feel free to contact the Course Director.

## Registration

There is no course fee. However, a non-refundable registration fee of Rs.50/- (Rupees Fifty only) is to be paid by way of a Postal Order (drawn in favour of the Comptroller, CSKHPKV, Palampur) payable at Palampur.

## Boarding and Lodging

The boarding, lodging, TA and DA expenses of the selected participants will be met from ICAR fund as per norms and operational guidelines for organization of the short course. Participants will be paid to and fro fare for journey, restricted to **AC-III tier** train fare or bus from the place of duty to the short course location and back by shortest route for encouraging maximum participation across the country. Actual TA will be paid on production of tickets by the participants. **Travelling by air is not permitted by ICAR.** The participants will be provided shared accommodation in the guest house of the University.

## How to Reach

Palampur is well connected with other parts of the country through air, rail and road. The nearest airport is Dharamshala (*Gaggal*) which is about 40 km from Palampur. There are daily flights from Delhi depending upon weather. The nearest broad gauge rail heads are at Pathankot and Una, which are about 120 and 150 km away from Palampur, respectively. A number of buses are available from Pathankot and Una. Another route to reach Palampur is by bus from ISBT Delhi. Air conditioned buses are also available from the ISBT Delhi to Jogindernagar/ Baijnath – en-route Palampur.

### IMPORTANT DATES

<b>Last date for receipt of applications</b>	<b>: 05 January 2022</b>
<b>Intimation to selected candidates</b>	<b>: 10 January 2022</b>
<b>Confirmation by selected candidates</b>	<b>: 30 January 2022</b>

**For further details, please contact**

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