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## ENSURE APPROPRIATE DESIGN OF MICRO IRRIGATION SYSTEMS WITH DOMIS

Micro-irrigation methods (drip, sprinkler and micro sprinklers) apply water slowly, by depositing water either on the soil surface or directly to the root zone, through a network of valves, pipes, tubing and emitters. Micro irrigation methods are most efficient water application methods and need to be increasingly adopted in view of the increasing water demands from non-agriculture sectors. There are a large number of considerations, which must be taken into account in the selection of an appropriate micro irrigation system including crop to be grown, water availability and its quality, topography, soil type, weather conditions, availability of labor, energy, technology and financial resources.

Design of micro irrigation system specific to the local climate and crops grown in the area need to be developed for efficient inputs uses. A Decision Support System namely "Design of Micro Irrigation Systems (DOMIS)" is presented to help the user to design appropriate micro irrigation systems for efficient water utilization under different agro-climatic conditions for any crop under different sources of water availability. DOMIS includes the design of Drip Irrigation, Sprinkler Irrigation System and Micro-Sprinkler Irrigation Systems. It will evaluate the economic feasibility with detailed cost calculation of the suggested/ designed system

DOMIS - Design of micro irrigation systems provide the support in designing the appropriate micro irrigation systems DOMIS also provides general information about Government schemes, agencies promoting micro irrigation, implementing agencies in different States of India, approved system suppliers in different States and general information about different districts in the country. It contains detailed district wise climate, information on major crops, crop characteristics, soil type and their properties and ground water data. It also contains information on different types of components and their suitability under different field situations.

DOMIS provides default data as well as guidance for selection of suitable micro irrigation components taking the user through different design steps.

- Partitioning the whole field into blocks of desired dimensions
- Determination of most appropriate layout plan for main, sub main and lateral pipes in the field
- Estimation of water requirements at plant, lateral, sub main and main pipe level based on agro-climatic data
- Determination of suitable water application rate as per the soil properties
- Determination of sizes of laterals, sub main and main pipes based on their frictional loss analysis
- Estimation of size & type of accessories such as filters & fertigation equipment based on water quality and crop demand
- Determination of largest fraction of area that can be irrigated in one go based on the well source
- Determination of possible shifts and total time of irrigation for each irrigation
- Determination of total head requirement including the lift involved from ground water data
- Determination of size of motor pumping unit and the power requirement
- Estimation of the cost of the system based on costs of individual components

Source: Technologies and Knowledge Resources- ICAR, New Delhi

## IHT- EDUCATION

Institute of Horticulture Technology established during the year, 2009 completed a decade in 2019, it's decadal growth is signified by landmark achievements in capacity building, applied research and horticulture development activities. Starting of employment oriented Post Graduate Diplomas in Horticulture (PGDH) by Institute of Horticulture Technology under joint technical, academic and certification arrangements with Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar opens opportunities for young graduates to become job ready and to be placed in public and private sectors. Institute of Horticulture Technology is pioneer in embedding the curricula of these diploma programmes with such futuristic and emerging technologies as are contemporary and would build the competence of youth and entrepreneurs to have head start in their professions.

Similarly, in Open Distance Mode-ODL, a number of PG courses, Diploma in Agri input and certificate courses approved by Tamil Nadu Agricultural University, Coimbatore are being offered by Institute of Horticulture Technology at Greater Noida, NCR Delhi in collaboration with Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu for the benefit of youth, agricultural entrepreneurs and progressive farmers. All these courses are approved and introduced with need based curriculum

## Research and Development

IHT is recognized as SIRO – Scientific and Research Organization by Ministry of Science and Technology, Government of India and undertakes Research and Development Projects sponsored by DBT- Department of Biotechnology, Government of India and other national Institutes. The projects on Aroma Project- Field Demonstration of Cultivation and Development of Process Technologies of Aromatic Crops in Assam is being undertaken with partnering Institutes like Assam Agricultural University, Assam and ICAR Research Complex for NEH Region, a premier research institute of ICAR in Meghalaya. Our Institute is involved in a national project Biotech-KISAN Project for Empowering farmers of Assam and Nagaland as scientific grass root leaders through skill up-gradation, advance technology percolation and market information in the area of horticulture. Similarly, we have been/are working on the Technology Demonstration Projects on protected cultivation of vegetables, orchids, strawberry and other crops. These projects are being demonstrated in the farmers' fields.





## CAPACITY BUILDING E-TRAININGS PROGRAMMES

### Commercial Hydroponics

Hydroponics is no the buzzword when speaking about the “future” of farming. A growing population, shrinking land base and water resources suggest a reinvention of the agrarian process is more than needed. The demand for exotic greens and gourmet salads is at an all-time high and unfortunately, with our horrible weather conditions, it is impossible to get consistent quality greens and herbs all-year round. With hydroponics we are able to grow exotic greens and herbs all-year round, and with consistent quality always.

Our primary challenge is to educate our potential customers on the benefits of o hydroponic product. This topic is gaining momentum on social media and more people are aware of the benefits of eating hydroponic food.

Institute successfully organized e-training programs on “Commercial Hydroponics”, entrepreneurs and students from different estates of India have taken part. The participants were explained about water quality analysis, plant nutrition management, greenhouse technology- climate control, production technologies for various crops, training and pruning, physiological disorders of hydroponics crops (due to climatic factors and nutrients imbalance), greenhouse pest management and marketing practices of hydroponic crops. Various assignments were also provided to trainees for better understandings. This training is a step towards the upcoming startups being set up by the prospective bio entrepreneurs. The participants found the training very informative and express the importance of training program, the information given by experts and faculty was a great learning experience. During training trainees were explained well about water quality analysis for open & closed loop, plant nutrition management, nursery production, seeds identification, climate control in greenhouse, cladding materials, training-pruning, physiological disorders of hydroponics crops and greenhouse pest management.





## HOME GARDENING

Growing your own fruits and vegetables is the most organic you can get! You'll be helping the environment and saving money at the same time. This way you can control what goes into your food. Some people think they need a huge yard to have their own garden, but nothing could be further from the truth. No matter how much space you have, you can always find room for a few plants. This is true even if you live in an apartment or only have a small porch. All you need is a DIY attitude and a bit of creativity. Gardening is a wonderful activity to relieve stress. You're outdoors, you're getting exercise, and best of all, the activity often takes your mind off work and other stress in your life.

The e-training program for entrepreneurs/students on Home Gardening was conducted in this month. A gardener is responsible for maintaining lawns, trees, shrubs, ground covers; he needs to be aware of the soil and nutrition requirements of plants, pests and diseases and their control and drainage. Gardeners also need to acquire skills in grafting, pruning, weeding and harvesting of flowers, fruits and vegetables. The major training sessions were planting material, nursery production, plant propagation, types of gardens, kitchen /terrace/vertical gardening, planning and designing of greenhouse technology related to landscape horticulture, soil health management, bed preparation, moisture conservation, soil solarization, bonsai making, irrigation and fertigation, disease, pest and nutrient management, training and pruning in garden plants, establishment and maintenance of lawn and turf, culture of floral display, maintenance of garden and container gardening. The trainees found the program very useful being practical oriented with hand on experience.



### Upcoming e-Trainings

S. No.	Title	Date	Duration
1.	Commercial Hydroponics	15 September 2020	2 Weeks

*Customized courses also offered on demand*



ISO 9001 : 2008

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