Extended Abstract

Homemade Fertigation System

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Abstract

Fertigation is the application of nutrients through irrigation systems, a contraction of fertilization and irrigation to supply the plant with its daily demand of water and nutrients/fertilizers as required by its development.It usually practiced on high-value crops such as vegetables,turf,fruit trees,and ornamentals. The importance of fertigation in increasing productivity with efficient and reduced consumption of water and nutrients with practically no pollution is emphasized. The concept of fertigation, including the concepts of wetted soil volume and the resultant root volume and their optimization are discussed. The necessity, principles, chemistry and interactive effects, advantages and limitations of fertigation are explained. The precautions to be taken are also enlisted. The response of different crops to fertigation in terms of yield, use efficiency of water and nutrients etc. are reviewed here under. Production of vegetables and fruits in Malaysia using fertigation methods been experiencing accelerated growth. Fertigation allow farmers to automatically deliver adequate nutrient quantity and concentration through drip irrigation to plants active root area throughout the growing season. Conventionally,

three separate preset digital timers are used to turn ON/OFF injector and irrigation
pumps for fertilizer mixing and setting daily frequency of irrigation. The quality of nutrients solution level is manually checked using Electrical Conductivity (EC) meter to determine quality of the nutrient solution. This project was developed and tested to provide low cost solution for precise control of fertilizer mixing and irrigation to local farmers. A predefined EC value will be used as single input that control all automated processes in cucumis melo L. cultivation using fertigation system. The developed system powered totally by solar power system and tested on its effectiveness to control the nutrient mixing process and injecting nutrient solutions according to plants growth rate and in the same time monitor all key parameters in fertigation system.

Introduction

Fertigation is a process in which fertilizer is dissolved,diluted, and distributed along with water in your drip or sprinkler irrigation system.Or, in other word,fertigation is the process of application of water soluble solid fertilizer or liquid fertilizers through micro irrigation system.

Objective

Maximize profit by applying the right amount of water and fertilizer.Minimize adverse environmental effects by reducing leaching

The Fertigation

The units of fertilizer application are calculated based on the fertilizer requirement of individual plant.This is expressed in units of milligram (NITROGEN,PHOPHORUS,and POTASSIUM) per day over the

 entire growing period.

Methodology

Fertigation is a **method** of fertilizer application in which fertilizer is incorporated within the irrigation water by the drip system. In this system fertilizer solution is distributed evenly in irrigation. ... By this **method**, fertilizer use efficiency is increased from 80 to 90 per cent

TOOLS THAT USED IN FERTIGATION SYSTEM (a) ice

cream stick

(b)straws

(c)paip

(d)carpet grass
(e)timer

(f)plastic plant

(g)paper

(h)plastic box

Benefit of Fertigation

More effieciency use of nutrients.	Nutrients use efficiency by crops is greater under fertigation compared to **conventional** application of fertilizers to the soil.
Less water pollution.	Fertigation helps lessen pollution of water bodies through the leaching of nutrients such as N and potassium (N) out of agriculture farming.
High Resource Conservation.	Fertigation helps in saving of water,nutrients,energy,labor and time.
More flexibility in farm operations.	Fertigation provides flexibility in field operations. E.g. nutrients can be applied to the soil conditions prohibit entry into the field with the conventional equipment.
Efficient delivery of Micronutrients.	Fertigation provides opportunity for efficient use of compound and ready-mix nutrient sollutions containing small concentrations of Micronutrients.
Healthy Crop Growth	When fertigation is applied through the drip irrigation system,crop follage can be kept dry thus avoiding leaf burn and delaying the development of plant pathogens

Effective weed management	Fertigation help reduce weed menace particularly between the crop rows. Use of plastic much along with fertigation through drip system allows effective weed control in widely space crops