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Ecological farming: Its growth and development

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Short Commentary

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ABSTRACT

Our agriculture system now facing of severe productivity decline due to the increased cost of production. One of the major problem, this sector facing is non availability of enough water and power. The cost per unit power is increasing day by day so we introduce a novel technique to irrigate the plant with conserving both power and water^[1]. The traditional irrigation system supply fixed quantity of water to the field without considering the crop water requirement. The crop water requirement varies according to the weather and other environmental conditions^[2].

INTRODUCTION

A dynamic head water supply system is essential to meet the crop water requirement and there by optimizing the productivity. Existing technology uses sensor based on/off controlled irrigation system with area varying technique. Soil, as air and water, is a crucial asset needed for meeting the various needs of people. Natural contamination impacts both soil and agribusiness that are the two profitable asset key for our sustenance^[3]. Soil is expected as an unlimited asset that is utilized ceaselessly for expanding agrarian generation. The dirt today has basically turned dead in spots with expanding advancement and industrialization. Soil, microflora, fauna, supplements and related environment can possibly impact the dirt biological system, farming, environment and economy. Soil and its living creatures are a fundamental piece of biological communities and environment, assuming a discriminating part in keeping up soil wellbeing, environment working and efficiency^[4]. Focus on the existing soil testing methods used to test the soil all over the India, draw attention on the number of laboratories and the problems faced by them. Approaching the use of technologies to upgrade and advance the testing methods by use of software for not only storing soil test data but also performing the test of the agricultural land^[5].

Key Insights

A dynamic head water supply system is essential to meet the crop water requirement and there by optimizing the productivity. Existing technology uses sensor based on/off controlled irrigation system with area varying technique. In this paper a novel technique of irrigation system is presented. Here the crop water demand is assessed by pan evaporation water level method. Which is a water head demand is communicated to supply water head system^[6]. The input parameters measured from pan evaporation are modeled and estimated the time for maintaining water required for irrigation. These results are then simulated. Data collected from CPCRI Kasaragod for the year 2012 of pan evaporation and field data is compared. In the current generation most of the countries do not have sufficient skilled man power specifically in agricultural sector and it affects the growth of developing countries^[7]. The robotic system is an electromechanical (conveys a sense that it has agency of its own) and artificial agent which is steered by DC motor which has four wheels. The farm is cultivated by the machine, depending on the crop

considering particular rows & specific columns. The infrared sensor detects the obstacles in the path and it also senses turning position of vehicle at end of land. The seed block can be detected and solved using water pressure^[8]. The machine can be controlled remotely and solar panel is used to charge DC battery. Assembly language is used in programming the microcontrollers. The microcontroller is used to control and monitor the process of system motion of vehicle with the help of DC motor. India, with limitless rural grounds has distinctive harvests going from paddy to tomato^[9].

Anyhow, few harvests are pulverized because of creature threat and henceforth an insurance is obliged to spare the harvests from creature. For this venture, an endeavor is made to spare these products from such threats by utilizing sun powered fencing. In this, a triple lift extra circuit is utilized rather than transformer and rectifier extension to create high voltage with low current so as to safe-protect the creatures to a bigger degree with the goal that they encounters high voltage yet low current stun for a brief while there by sparing their life^[10].

Global food security will remain a worldwide concern for the next 50 years and beyond. Recently, crop yield has fallen in many areas because of declining investments in research and infrastructure, as well as increasing water scarcity. Climate change and HIV/AIDS are also crucial factors affecting food security in many regions. Although agroecological approaches offer some promise for improving yields, food security in developing countries could be substantially improved by increased investment and policy reforms^[11]. To help feed, clothe, and house an increasing population, to make marginal lands more productive, to meet challenging resource needs, and to reforest the devastated tropics, we need a revitalized worldwide investigation of little-known plant species. Such an effort would expand our agricultural resource base and ease our dangerous dependence on a relative handful of crops^[12]. It would build a more stable food supply for drought-stricken Africa and other parts of the Third World, and it would reclothe many of the barren lands where erosion now threatens disaster. Some plants that are now virtually unknown are likely to become mainstays of international agriculture and industry^[13].

Trickle watering system is the technique generally utilized as a part of the accuracy horticulture, which lessen the water origination as it inundates water to the plant's root locale. Another system is compost made as trickle, flooded alongside water. The customary technique gives the better yield however show situation says soil contamination in conventional horticulture practice is extreme because of water flooding, over preparation, high use of pesticide ^[14].

This task gives a framework based reckoning strategy to decrease contamination level, an effective exactness horticulture for little scale cultivating, and solid information accumulation from the paddy field. Plant wellbeing is checked utilizing Leaf Color Chart (LCC) and essential treatment is finished by actuator sent in the field. pH of the field fluctuates with temperature and manure utilized, which choose level soil contamination.

An examination was led with 18 distinct characters in jug gourd (*Lagenariasiceraria* (Molina) standl) embodying 36 crossovers got by intersection 9 lines and 4 analyzers by line x analyzers technique to study the connection and immediate and circuitous impacts of distinctive characters on organic product yield^[15]. The trial was led in a randomized piece outline. The general investigation uncovers that organic product yield was absolutely and huge associated with natural product tissue thickness, number of organic products per vine and number of organic product pickings. The way investigation showed that number of organic products per vine, days to first female bloom opening, natural product cavity and natural product weight had positive direct impact on organic product yield.

. In this way accentuation ought to be given on natural product substance thickness, number of organic products per vine, number of organic product pickings, days to first female bloom opening, organic product depression and natural product weight, while selecting a decent half and halves for improving the yield of jug gourd^[16].

Overwhelming metal pollution of soils and sustenance supply is not simply a modern sensation. It has happened following the time when people mined and smelted metals. Soil contamination in the Bronze Age is confirmed by the heavy metal focuses in old skeletons. Legacy contamination from preindustrialization metalliferous periods of human history is still found in soils and marshes. Since the beginning of the modern contamination, defilement of the biosphere with toxic trace metals has further expanded and turned into an overall public health concern^[17]. Overwhelming metal contamination has been "globalized" by large scale use, and air transport systems. Contamination by substantial metals is a

discriminating donor to soil and water quality corruption, as well as to human and creature health because they bioaccumulate in the evolved way of life. Real sources of heavy metal sullyings in China were distinguished as manufacturing, strong waste, and waste water. Chronic accumulation of these substantial metals risks soil ecosystems services by diminishing the soil quality for crop development, as well as disturbing the exercises of soil organic entities.

At first Germination lastly trim foundation are the significant issues of rainfed wheat in dry season condition, if the harvest has been developed well then the winter downpours are adequate to set up the wheat in rainfed territories of Pakistan. Field analysis was directed at University Research Farm of Pir Mehr Ali Shah, Arid Agriculture College Rawalpindi, Pakistan to research out the wheat crop foundation and weed populace flow under diverse culturing frameworks incorporated with glyphosate herbicide under wheat-decrepit pivot through randomized complete square plan amid summer and winter seasons of 2012-13^[18]. The test contained seven culturing medications viz. T1 = 1 MB Plowing + 8 Cultivations, T2 = 1 MB Plowing + 4 Cultivations, T3 = 1 Disk Harrowing + 4 Developments, T4 = 1 Chiseling + *Glyphosate herbicide, T5 = 1 MB Plowing + *Glyphosate herbicide, T6 = 1 Disk Nerve racking + *Glyphosate herbicide and T7 = No-Till + *Glyphosate herbicide. The culturing medicines in mix with glyphosate herbicide were connected amid neglected time of summer season 2012 and sowing of wheat cv. Chakwal-50 was done in winter season 2012-13. Wheat foundation and weed development progress were resolved through diverse investigative variables viz. number of tillers m⁻², shoot length plant⁻¹, root length plant⁻¹ and dry biomass m⁻² at 45 DAS of wheat and weed thickness m⁻², weed species assorted qualities and weeds dry biomass m⁻² at two stages i.e. 60^[19].

DAS and 150 DAS of wheat, separately. Results indicated noteworthy impact of medications on number of tillers m⁻² and dry biomass m⁻² of wheat, while, non-huge on shoot length and root length of wheat; though, weeds thickness m⁻², weeds species assorted qualities and weeds dry biomass m⁻² were fundamentally influenced by distinctive culturing frameworks at both 60 DAS and 150 DAS phases of wheat. There were huge motion in differences, thickness and dry biomass of weeds between both stages. In view of these outcomes and group examination of wheat foundation and weeds development information, it is reasoned that wheat product was entrenched under T1, T2, T5 and T6 and the weed development was least under T1 also, T7; hence T1 is prescribed to the ranchers of Pothwar district of Pakistan; though, further examinations are needed to close the adjustment of lessened or no-till framework in semi-bone-dry zones of Pakistan^[20].

In this study, the reaction surface technique and trial configuration were requisitioned advancement of free variables for elucidation of sugarcane juice. A focal composite configuration, with 6 hub focuses, 8 factorial focuses and 6 duplicates at the inside point were utilized to construct a model for anticipating and advancing illumination process parameters. The free parameters viz Temperature (73.59, 77, 82, 87 and 90.41 °C), Activated charcoal thickness (0.83, 1.0, and 1.25, 1.5 and 1.67 mm) and deola (0.063, 0.2, 0.4, 0.6 and 0.74 g/l) were chosen and examined. Factual checks (ANOVA table, R² worth, model absence of fit test and F-quality) demonstrating that the model was sufficient for speaking to the trial information. The needy parameters measured were consistency, °Brix, and aggregate solids values. Ideal estimations of procedure parameters acquired by utilizing synchronous improvement of ward parameters were: 77.55 °C temperature, 1.5 mm initiated charcoal thickness and 0.48 g/lit deo^[21].

A field trial was led amid the kharif season of 2011-12 at Agronomy Research Farm, Focal Research Station, Orissa University of Agriculture and Technology, Bhubaneswar. The trial was laid out in part plot configuration to discover the impact of different foundation strategies and weed administration rehearses on diverse weed parameters, for example, weed thickness (Grasses, Sedges and Broadleaf weeds), weed dry matter, weed control proficiency and grain yield under rainfed swamp rice^[22]. Investigation came about that Weed parameters like aggregate weed thickness (8.0 no. m⁻²), weed dry matter (6.4g.m⁻²) and weed file were most minimal in arrangement of rice heightening (SRI) at 30 days subsequent to transplanting/sowing (DAT/S). Regarding weed administration practices aggregate weed thickness (7.53 no.m⁻²), weed dry matter (2.3 g m⁻²) was recorded most reduced in pyrazosulfuron-ethyl @20 g.ha⁻¹ and most astounding weed control proficiency 97.04 percent were recorded in conoweeder. Grain yield of 5.02 t ha⁻¹ and 4.76 t ha⁻¹ were recorded in SRI furthermore, conoweeder separately. While most noteworthy straw yields were recorded in SRI (5.8 t ha⁻¹) and conoweeder (5.5 t ha⁻¹).

Extreme infestation of weeds lessened the yield by 32, 38, 39 and 52 percent in transplanted, SRI, drum seeded and direct seeded rice^[23].

CONCLUSION

Germination tests revealed that salt stress significantly reduced final germination percentage, germination index, energy of germination and embryo axis length. Okra seeds subjected to salt stress depicted delay in mean germination time and increased time to 50% germination^[24]. The germinated seedlings followed an attenuating pattern in terms of seedling root and shoot length and fresh and dry weight. The emergence tests of okra seeds portrayed a declining trend in emergence percentage, seedling biomass (fresh and dry) and seedling root and shoot length. On the basis of these attributes, the okra genotypes OH- 713, OH-139, OH-138, OH-2324 and OH-001 were among the most tolerant group and medium tolerant group included OH-597, MD-02, OH-152. Lower medium tolerant group was formed by PMF-Beauty, PusaSwani, JKOH- 456, OH-809, MF-04 whereas the sensitive genotypes included Kiran, Okra-1548, Ikra-3, Sabzpari, Okra-7100, Sitara- 9101, Okra-7080^[25]. From the findings of this research trial, it can be extracted that germination and emergence tests are the significant screening tools for evaluating the okra genotypes at early growth stages under salt-stress.

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