Review Paper on Micro Nutrients

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***Abstract*—This review paper based on micro nutrients effects and analysis of different methods applied and which type of results are come out. We take overview of nutrients effects on its value. Use data mining methods for getting given result.**

Keywords—Micro nutrients study, Data mining Methods

I. INTRODUCTION

In Agriculture sixteen fertilizer nutrients area unit essential for correct crop development that absorb from soil. Everyone is equally necessary to the plant that needed in immensely totally different amounts. These essential components variations have led to the grouping into 3 classes like primary (macro) nutrients, secondary nutrients and micronutrients that all are required to plant or crop for develop.

Primary (macro) nutrients are nitrogen (N), phosphorus (P), and potassium (K). They're the foremost of times needed during a crop fertilization program. All area unit would like within the greatest total amount by plants as fertilizer. The secondary nutrients area unit Ca (Ca), magnesium (Mg), and Sulphur (S). For most crops, these 3 are required in lesser amounts that the first nutrients. They're growing in importance because of additional tight clean air standards and efforts to boost the atmosphere in crop fertilization programs. The micronutrients area unit boron (B), chlorine (Cl), cooper (Cu), iron(Fe), manganese (Mg), molybdenum (Mo), cobalt (Co), silicon (Si) and Zn (Zn). These fertilizer components area unit employed in terribly little amounts, however they're even as necessary to plant development and profitable crop production because the major nutrients [2] [3]. Especially, they work "behind the activators of the many plant functions. All nutrients area unit required however it's some restricted rating. In step with their restricted rate, each nutrient has its own totally different impact on crops. Macro or primary components area unit importance for the expansion of the plant however small components aren't slighter than those of major components. Because of deficiency of those are leaves, branches and fruits might not properly grow and that they might even are the fruits quality yet as production. Small components conjointly facilitate in development of enzymes, hormones, chlorophyll and within the absorption of major components Nutrient functions, deficiency symptoms, convenience are used for agricultural land that is extremely effectively offer impact on soil.

II. NUTRIENT FUNCTION [4][5]

Nutrient Deficiency and Excess		
Nutrient	**Deficiency**	**Excess**
Nitrogen (N)	Reduced growth, light-weight green to yellow foliage. Reds and purples, Sometimes with pink tints	Succulent growth, Thick and brittle; leaves are dark green, Poor fruit set; excess ammonia will induce Ca deficiency
Phosphorus (P)	Reduced growth; leaves dark green; purple or red in older leaves	Shows up as micronutrient deficiency of Fe, Zn, or Co
Potassium (K)	Reduced growth; Shortened internodes; Older leaves become burn; Poor flowering or fruiting	Causes N deficiency in plant and should have an effect on the uptake of alternative positive ions like Mg and Ca
Magnesium (Mg)	Yellowish, bronze, chromatic color	Little death spots in older leaves; Interferes with Ca uptake
Calcium (Ca)	Inhibition of bud growth; roots will flip black and rot; young leaves are rough structure is weak;	Interferes with Mg absorption high Ca typically causes high pH that then precipitates several of the matter so that they become unavailable to the plant
Sulfur (S)	Rarely deficient; general yellowing of the young leaves	Sulfur excess is usually in the form of air pollution
Iron (Fe)	Interveinal chlorosis, Soil high in Ca, Poorly drained soil, soil high in Mn, high pH, high P, soil high in heavy metals (Cu, Zn), Dryness of branches and leaves, Yellowing of leaves.	Rare except on flooded soils
Boron (B)	Failure to set seed; Internal breakdown of fruit or vegetable; Death of apical buds, Giving rise to witches broom; Corkiness & Dryness of fruits, Internal rotting in plant	Tips and edges of leaves exhibit necrotic spots coalescing into a marginal scorch
Zinc (Zn)	Young leaves are very small, Small size of leaves, Deformed leaves	Poor germination; entire leaf is affected by chlorosis
Copper (Cu)	New growth small, Misshapen, wilted; Gummosis in plants, Dieback in plant, Discolor of leaf	Can occur at low pH; shows up as Fe deficiency
Manganese (Mn)	Poor bloom size and color; induced by excessively high pH. Discoloration of leaves, Yellowing of leaves	Reduction in growth, brown spotting on leaves; shows up as Fe deficiency;
Molybdenum (Mo)	Interveinal chlorosis on older or midstream leaves; Twisted leaves (whiptail); Yellow spots in the leaves, Loss of greenness in leaves	Intense yellow or purple color in leaves; rarely observed
Chlorine (Cl)	Yellowing of leaves and fall from plants, Fading of plant	Salt injury, leaf burn, may increase succulence
Cobalt (Co)	This need by plants recently established; essential for Nitrogen fixation	Little is known about its deficiency or toxicity symptoms

Nickel (Ni)	Essential for seed development	

III. Related Work

Paper 1: Performance Tuning of J48 Algorithm for Prediction of Soil Fertility

Author: Jay Ghopal

Publication: Asian Journal of Computer Science and Information Technology, Vol 2, No 8 (2012)

This Paper aims to predict soil fertility category mistreatment call tree algorithms in data processing. It focuses on performance standardisation of J48 decision tree algorithmic program with the assistance of Meta -technique like attribute choice and boosting with 96.73% result that makes smart prophetical [1].

Paper 2: An Approach Based on Decision Tree to Agricultural Land Grading

Author: Jiejun HUANG, Yanbin YUAN, Wei CUI, Yunjun ZHAN

Publication: International Conference on Computer Design And Applications, 978-1-4244-7164-51$26.00 © 2010 IEEE

As a classification technology, decision Tree has already been applied wildly within the space of data classification. This paper foremost introduces the elemental theory and characteristics of call tree yet as its learning method. Then repetitious Dichotomiser three (ID3) and call tree pruning algorithmic program area unit combined to construct the choice tree for agricultural land grading with a decent result. The sampling and testing result shows that the accuracy during this case reaches as high as eighty six. It is simply all over that call tree is a good means for agriculture land grading [4].

Paper 3: A Study on Evaluation of farmland fertility levels based on optimization of the decision tree algorithm

Author: Liu He, Cao Liying, Zhang Xiaoxian, Li Dexin

Publication: 2nd International Conference on Computer Science and Network Technology, 978-1-4673-2964-4/12/$31.00 ©2012 IEEE

Base on the organic matter, total nitrogen, available phosphorus and potassium content in the cultivated land of The 20 District in Dehui 20, it comes a study on using the decision tree ID3 algorithm for the evaluation of farmland fertility levels. Through experimental analysis, it gets the number of grade 6, grade sub- region soil nutrient content is comparable or smaller variations, and vital variations among grades. Analysis supported farmland is used for variable rate fertilization within the steering of preciseness agriculture, to supply a good division for farmland fertility level partition [5].

Paper 4: Development of Growth Model-based Decision Support System for Crop Management

Author: CAO Weixing, TANG Liang, ZHU Yan, PAN Jie, LI Weiguo, CHEN Binling

Publication: Second International Symposium on Plant Growth Modelling, Simulation, Visualization and Applications, 0-7695-2851-1/07 $20.00 © 2007 IEEE, DOI 10.1109/PMA.2006.51

Growth model-based decision support system for crop management (GMDSSCM) was developed together with method based mostly models of four totally different crops, i.e. wheat, rice, oilseed and cotton. This method aims in facilitating simulation and application of crop models for various functions. Individual models every embrace six sub models for simulating phasic development, organ formation, biomass production, yield and quality formation, soil-crop water relations, and nutrient (N, P, K) balance. The enforced system is used for evaluating individual and comprehensive management ways supported the results of crop growth simulation below numerous environments and totally different genotypes [6].

Paper 5: The Development and Application of Decision Tree for Agriculture Data

Author: Jun Wu, Anastasiya olesnikova, Chi-Hwa Song, Won Don Lee

Publication: Second International Symposium on Intelligent Information Technology and Security Informatics, 978-0-7695-3579-1/09 $25.00 © 2009 IEEE, DOI 10.1109/IITSI.2009.10

The fast increase of the world's population, the forceful changes in world's food offer, and therefore the limitation of natural resources, the pressure for agriculture is larger than ever before this paper principally discusses a particular call tree classifier that is employed to predict and classify agriculture information. It's capable of handling each complete information and incomplete information. In order that it is applied into the classification drawback for every kind of agriculture information sets. The experiments area unit designed to prove the advantage of the planned algorithmic program C4.5.0 [7].

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