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Conceptual review on IOT Technology in Agricultural Development

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Abstract : Agriculture is the backbone of India and Machines plays vital role agricultural Development. Modern technological developments in information technologies has led society to store large amounts of data in almost all fields namely business, marketing, surveillance, science, medicine, economics, fraud detection sports etc. Often there is an information hidden in the data that is not readily available until and unless analyzed. Agriculture is one of such field which contain large amount of information Hidden which is key source for Knowledge discovery. Knowledge discovery in databases (KDD) is a process which deals with a goal of discovering knowledge as per the users requirement in which old data is explored to develop a new knowledge by discovering rules and patterns using machine learning and visualization techniques which can be achieved using Data mining tool .Data mining is a process of model building in which mining model is created by applying an algorithm to data. According to Hand, Mannila, and Smyth (2001) "A data mining algorithm is a well-defined procedure that takes data as input and produces output in the form of models or patterns" which can be applied to new data to generate predictions and make inferences about relationships.Descriptive model and Predictive model are the two types of data mining models developed during the process of data mining.The most commonly used data mining techniques are classification, clustering, regression and association rules.

***IndexTerms* – KDD, Data Mining, Visualization.**

I. INTRODUCTION TO DATA MINING IN AGRICULTURE

Data mining is extensively applied in agricultural sector to information and reduce man power and to transfer data securely which further leads in development of electronic system which increase production, to produce healthy food by sharing useful information, helps endeavour to predict trends about Customer situation and behaviour. Data mining in agriculture provides several opportunities for exploring unseen patterns in these collections of information. These patterns can be used to decide the condition of customers in agricultural organizations. Hence, new technologies are required for fulfilling the yielding need and farmers must work smartly by opting new technologies rather than going for trivial methods. This research work focus on Data Mining techniques for soil degradation, over usage of pesticides and their cause on human health and to compare and evaluate algorithm for better prediction. Data Mining is used for Automate prediction, trends and behaviour and Automated discovery of previously unknown pattern using various task in Data Mining

1. Anomaly detection –detecting Outlier, Changes, deviation detection
2. Association rule learning –Finding relationship between the variables
3. Clustering- Discovers group and structure in the data(identifying similarity of data)

II. Why Agricultural Data

Soil is a fundamental factor in agriculture because they are the source of plant cultivation hence, soil fertility plays major role in crop productivity mining of soil data is very much important. By mining these soil data we obtain knowledge like nutrient content, composition and its character. There are different kind of test available to measure fertility and deficiency of nutrient in soil .The soil testing laboratories provide apt practical literature on different aspects of soil testing, as well as testing methods and formulations of fertilizer and manure recommendations. It helps farmers to fix the amount and type of fertilizer but over usage of these fertilizer leads to degradation of soil. The challenging task here is mapping degraded soil with cultivation, amount of soil degradation, and how to stabilize the nutrition in soil. Soil degradation or soil quality depends on the chemicals in it like Nitrogen, potassium, and phosphorus (N, K, and P) which are responsible for yield. These soil components exist naturally in young and well-maintained agricultural soils. They accumulate through the use of fertilizers, from rainfall, biofixation, sediment deposited by down slope wash, or by fluvial activities. Scarcity of these chemical results in soil erosion, uptake by crops, leaching, and volatization. Contamination in agricultural soil areas function as sinks for both organic and inorganic contaminants released from the use of fossil energy and dispersion and decomposition of materials transported by water, air, and human activities. These materials include petroleum hydrocarbons, heavy metals such as Ni, Cr, Cu, Cd, Hg, Pb, Zn, and As, acid mine drainage, and pesticides. Hence, there is need to analyse degraded soil

III. Factor influencing Crop Growth:

Quality of soil: Quality of Soil is the main factor that influence on the crop growth.Soil degradation is the main problem agriculturist face in cultivation soil get degraded by using heavy chemical pesticide .Soil degradation has become serious problem India. People in India mainly depend on agriculture. Due to increase in population we are in urge to increase the productivity to meet basic human conception. Even though pesticide improves world food supply increase better growth and yield indiscriminate use of this pesticide increase environmental health problem. The factor that influence healthy crop are depends on quality of soil, amount of pesticides usage further soil quality depends on the amount of chemical present in soil names attributes of good soil pH, salinity, Caution Exchange Capacity, C:N ratio, Phosphorous activity of soil copper content, zinc lead, cadmium, nickel, metalloids Arsenic, Polycyclic Aromatic Hydrocarbon(PAH), Genotoxcity, CaCo3and level of hazardous pesticide usage.In India, soil degradation is expected to occur on 147 million hectares (Mha) of land, including 94 Mha from water erosion, 16 Mha from acidification, 14 Mha from floods, 9 Mha from wind erosion, 6 Mha from salinity including 7 Mha from a combination of factors. This is particularly bad as India hosts 18 per cent of the world's human population and 15 per cent of the world's livestock population, but just 2.4 per cent of the world's land area. Despite its low-proportional land area, India ranks second in the world in agricultural output. Agriculture, forestry and fisheries account for 17 per percent of its gross domestic product and employ over 50 per cent of the country's overall workers. The causes of soil erosion are biological and human-induced. Biological resources include earthquakes, tsunamis, flooding, avalanches, landslides, volcanic eruptions, hurricanes, tornadoes even wildfires.Human-inducing soil degradation results from land clearing and deforestation, inappropriate agriculture, inadequate industrial waste and waste management, overexploitation, careless forest management, surface mining, urban sprawl and business-industrial development. Farming practices inappropriate include heavy-duty workmanship and utilization, excess and unequal use of inorganic fertilizers, poor irrigation and water management practices, and overuse of pesticides, insufficient crop residues and/or organic carbon supply and inappropriate crop cycle planning.

IV Physical Properties of the Soil:

As known above, the physical degradation of soil mostly alter the physical properties of soils and foremost to diminishing its fruitful capacity. Hence, physical properties are analysed to recognize the condition of degradation. The physical properties of soil are those which can be estimate by visual assessment. Measurement of these lands can be complete on the basis of some kinds of weighing machine(Scale) such as amount, strength or greatness. Soil use and crop growth seriously depend in the lead physical properties of the soils. The anchorage that it provides to crop, saturation of roots, drainage, exposure to air, preservation of moisture and crop nutrients are mainly correlated with the physical condition of the soils. The bulk, shape, preparation, minerals, kind and quantity of organic substance, and occupied water etc. are factors dependable to decide the physical properties of the soils.

Soil Color: Soil color is formed by the minerals there and by the organic substance content. Yellow or red soil indicates the occurrence of oxidized ferric iron oxides. Dark brown or black color in soil indicates that the soil has high organic matter substance. Wet soil will appear darker than dry soil. However, the presences of water also involve soil color by distressing the oxidation rate. Soil that has high water content will have less air in the soil, exclusively less oxygen. In healthy drained (and consequently oxygen rich) soils, red and brown colors caused by oxidation are additional common, as disparate to in wet (low oxygen) soils where the soil usually emerge grey or greenish by the presence of compact (ferrous) iron oxide. The presence of other mineral deposits can also affect soil color. Classification often described by using universal terms, such as dark brown, yellowish brown, etc., soil colors are also explain more technically by using Munsell soil color charts, which divide color into components of hue (relation to red, yellow), assessment (lightness or darkness) and chroma (paleness or strength).

Soil Texture: The comparative amount of the sand, silt and clay there in the soil is phrase the soil texture. It specially effects on equally the physical and chemical properties of the agricultural land. The surface of the soil influences the time at which water penetrate and drains, beside with the volume of irrigate that would be stored at root sector and made presented for crop use. These properties involve the occurrence of irrigation and water to be useful. Physiographic, climatic and anthropogenic feature involve on soil texture. The upper part of region has ascendancy of sandy clay loom, sandy loam, sandy clay, clay loam, clay sandy textured soils.

Soil Consistency: The stability of soils is normally described at three soil dampness levels: wet, moist and dry. Conditions used to explain soil consistency. Terms such as weakly covered, strongly covered, and indurate are used to define grouping of cementation. The steadiness of a fine-grained soil is the substantial state in which it exists. It is used to indicate the amount of fineness of a soil. Consistency of a soil is indicated by such conditions as soft, firm or hard.

Soil Structure: Soil structure is the schedule of prime soil particles into combined around which the roots grow up and air and water travel. Soil structure describes the group of the solid parts of the soil and of the pore gap located between them. It is firm by how individual soil granules clump, attach jointly, and total, resulting in the present of soil pores among them. The soil structure describes Granular, Crumb, Blocky, Prismatic, Columnar, and Platy.

Bulk density: The dry power of a unit quantity of soil inclusive of pore spaces is called bulk density. Normally soils with low bulk thickness have favourable physical situation, whereas with elevated bulk densities have unfavourable physical conditions. The bulk densities reduce when the soil is well textured. Bulk density is used to compute total water storage space capacity per soil amount and to estimate soil compactness. There are very few villages having very high bulk density. The soil compactness is cramped in these areas which is the suggestion of soil degradation. Elsewhere most of areas in the region have apposite bulk density. Bulk density measured (Grm.Cubic/kg).

Chemical Properties of soil: Soil is a accumulate house of a mixture of chemical elements. The chemical essential elements contains into soil performs major role in crop production. It develops the by chemical actions in the soil. This chemical effect helps to decide the availability of necessary soil nutrients. For the evaluation of soil's chemical problems it is critical to take into contemplation the real chemical state through the analysis of soil chemical properties. In this regards the concise review of such properties are measured.

Soil pH: The negative logarithm of Hydrogen ion (H+) attention is called pH. It has an effect on on chemical and biochemical reactions. It is a element to measure soil acidity and soil alkalinity. An acid soil result has pH value less than 7, while a basic solution has pH 7 and above 7 is measured as an alkaline soil. The pH of the soil is very essential because soil solution carries nutrients such as Nitrogen (N), Potassium (K) and Phosphorus (P) that crop need in exact amounts to grow up, succeed and fight in opposition to diseases. Soil pH also affects on a lot of things such as soil texture, creatures, bacteria and possibly most important the quality and quantity of crop production.

Salinity (EC): Electrical Conductivity is the capability of soils to perform the electric current. This is associated to the amount of dissolved salts in the soils. This is associated to the total quantity of dissolved salts in the soils. Saline soils are clear as those with an EC of better than 1.5 dS/m for 1:5 soil water take out and greater than 4 dS/m for a diffusion extract. Thus the electrical conductivity (EC) is the most general measure of soil salinity. Elevated salinity results the upper electrical conductivity and vice versa.

Caution Exchange Capacity (CEC): Caution exchange capacity (CEC) is a compute of the soil's capability to hold positively charged ions. It is a very imperative soil property influencing soil structure steadiness, nutrient accessibility, soil pH and the soil's effect to fertilisers and previous ameliorants. High clay or organic matter comfortable soils have a higher CEC than low down organic matter or sandy soils. Organic matter has a extremely high CEC. Sandy soils rely greatly on the high CEC of organic matter for the preservation of nutrients in the earth.

Carbon and Nitrogen ratio: It should now be apparent from the discussion of C:N ratios and soil cover that management choices must strike a balance between crop residues covering the soil and nutrient cycling. An awareness of crop C:N ratios is necessary to select crop types and keep a cropping sequence on the right path toward sustainability, that of the ultimate C:N ratio of 24:1 that supports soil microorganisms.

Phosphorous: The awareness of P in the soil resolution can range from 10-4 M, very high, to 10-6 M, lacking, to as low as 10-8 M in some very low-fertility humid soils. These concentrations can be associated to the amount of P in the soil explanation and crop uptake of P. Phosphorus is a necessary element for all living organisms. As a section of every alive cell, P is necessary because no other factor can restore it in its vital position in several physiological and biochemical processes. As an effect, the production of crops for food, feed, fuel and fibre requires a sufficient contribute of P in the soil of the crop nutrients essential by crops in great amounts, P is of mostly concern because of the rate of development of this non-renewable resource to meet up current order.

Copper (Cu): Copper (Cu) is in nature present in all soils with a usual range of 2–60 mg kg−1. .The highest value of 70 mg kg−1. The conventional use of Cu fungicides against mildew diseases has lead to the increase of Cu in several vineyard and orchard soils. Accordingly, there is a shift to reduce the make use of of these compounds in agriculture, particularly in organic farming. A complete study has not been finished of the Cu content of agricultural soils, which are normally alkaline with high mud content and may, therefore, be susceptible to Cu accretion. Within the structure of various projects, surface soil samples were taken from dissimilar regions of various representative crops, and particularly, for empty soil and discarded land.

Zinc (Zc): Zinc insufficiency occurs when plant enlargement is limited because the crop cannot take up sufficient quantities of this necessary micronutrient from its growing average. It is one of the mainly widespread macronutrient deficiencies in crops and pastures global and causes large sufferers in crop production and crop value. Zinc is an important micronutrient which means it is necessary for plant increase growth and development, but is required in very little quantities. Although zinc needs vary with crops, zinc leaf concentrations on a waterless substance basis in the range 20 to 100 mg/kg are sufficient for the majority crops.

Lead(Ld): Lead is naturally present in all soils. It generally occurs in the range of 15 to 40 parts lead per million parts of soil (ppm), or 15 to 40 milligrams lead per kilogram of soil (mg/kg). Pollution can increase soil lead levels to several thousand ppm. The major cause of soil lead contamination in populated areas is the weathering, chipping, scraping, sanding, and sand-blasting of structures bearing lead-based paint.

Cadmium (cd): Amongst the heavy metals, Cd is the most plentiful, and readily taken up toxic HM by the crop plants; therefore, of great concern. Its average attention in soil ranges from 0–1 mg/kg, while 1–3 mg/kg indicates small contamination. Cadmium (Cd) in soil is enriched through some leaky organization agricultural practices and accepted possessions. Cd enriched soil is predictable cause of dietetic stress as well Cd induced toxicity indication and physiological malfunctions.

Nickel (Ni): Nickel is exceptional surrounded by plant nutrients because its functions in crop growth and improvement. Nickel comprises more or less 3% of the earth's outside work and is the twenty-fourth most plentiful element. Total Nifocus usually ranges from 5 to 500 mg kg-1, with an average of 50 mg kg-1 in soils. However, Ni attention in dried bio solids (also referred to as treated manure slush) or soil near metal refinery range among 24,000 and 53,000 mg kg-1.Soils for crop production include 3–1,000 mg kg-1.

Metalloid (AS): 'Metalloids' is a expression that is regularly used to group elements that own physical and chemical characteristics that are middle between those of metals and non-metals. For occurrence, they conduct heat and electrical energy better than non-metals but not as well as metals (i.e., they are semiconductors). Also, in general structure amphoteric oxides, being an acid and a support. Commonly the following elements are measured metalloids: boron (B), silicon (Si), germanium (Ge), arsenic (As), antimony (Sb), tellurium (Te), polonium (Po) and astatine (At). Exposed to arsenic in drinking water if live in an area where elevated amounts of arsenic are in soils and mineral set down. People existing close to factories, waste sites or farms where arsenic or pesticides were once second-hand may be uncovered. Global average total soil arsenic attention is 5 mg/kg, (comparable to parts per million), but there is large deviation between and within environmental regions

PAH (Polycyclic Aromatic Hydrocarbon): The for the most part significant human being sources of PAHs include warmth and power generation from coal and last fossil fuels, coal misuse, petroleum refining, coal and oil shale change, and chemical manufacturing. The contamination of soil PAH originates from atmospheric emissions of PAH by precipitation. Gaseous and particle-bound PAHs can be elated over long remoteness before storage space. The deposited PAHs collect mainly in the humus coating of the soils. Unnecessary accretion of PAHs in agricultural soils may not only outcome in ecological contamination, but also eminent uptake of PAHs by crops, which may manipulate the quality and safety of food. Hence there is an escalating need to study the quality and behaviours of PAHs in agricultural soil

Pesticide for crop growth: Even though pesticides are essential for crop growth high usage of pesticide or misuse of pesticides harms crop and human health. Many research gives evidence that over usage of pesticides leads to over growth in plants and human ill effect so we are in need to mine these data which help the farmer and agricultural researchers to decide best pesticide associated with crop quality so phase II aims at recommending Pesticides considering soil quality as a parameter

Soil Degradation Alarm: Over usage of pesticide is an important problem to be addressed due to factors such as water contamination, ecosystem disturbance and habitat contamination (Marquis 2013). the challenges that pests pose on crop production, has resulted in farmers developing additional interest in the use of pesticides in agriculture fields. In developing countries, the majority of the farmers are illiterate and do not know how these chemicals must be handled securely. The dangerous application and interaction with these agrochemicals can have harmful health impacts upon farmers, chemical applicators on business farms and on small-holder farms (Marquis, 2013). This way is resulting in harmful health impacts in local populations.Pesticides used in India, their healthiness effects and fates in the environment wide collection of pesticide lively ingredients are used in India. The most generally used in rice cultivation includes; chlorpyrifos, furandan, carbolinium, diazinon, Malathion, endosulfan, cyfuthrine, propanil and 2,4-D. Some of the pesticides used rice crop is mentioned below.

Chlorpyrifos(C9H11Cl3NO3PS): Chlopyrifos is a universal chlorinated organophosphate insecticide which has been classified as the most widely used pesticide worldwide (Watts,2012). It is used in animal crop growing, cereal fields, vegetable farms, home gardens, paints and other construction materials, such as firewood products (Watts, 2012). It is also used as a home pesticide against domestic pests like bed bugs, cockroaches, termitesand rats.Chlorpyrifos is sold in numerous forms such as liquid, flowable concentrates, granular, and powder under different deal names such as Dursban, Lorsban, Suscon Green, Empire and Equity (Watts, 2012). Chlorpyrifos is also an endocrine disruptor and be able tohave an effect on the production of oestrogen, androgen, testis and the thyroid hormones (Aldrige, 2004; Watts, 2012). Early day's childhood revelation could lead to anomalous behaviour in adulthood and has been correlated with delayed cognitive and psychomotor growth. Sharp exposure has been known to provoke hyperglycaemia and hyperlipidaemia (Acker et al, 2012). Symptoms of chlorpyrifosrevelationconsist of: lacrimation, headache, stomach ache, nervous disorder, loss of hunger and nausea.

Malathion (C10H19O6PS2): Malathion is an endocrine gland disrupter. If exposure is low down, it can cause nervous disorders. This pesticide can harm babies when inhaled by pregnant women. It is also dangerous and has been connected with tumour growth developments in both humans and animals.

Endosulfan(C9H6Cl6O3S): Endosulfan is an organochlorine pesticide which can gather in human tissues and can affect the nervous structure when after exposure. It is an endocrine gland disrupter and this pesticide is teratogenic and carcinogenic. Exposure to pregnant women can lead to anomalous births (Mergel, 2011). Endosulfan has been banned by EPA since 2010 and it is also banned in some West African countries including Sierra Leone. However, it is still in use in India.Soil degradation also affects human nutrition and health through its adverse impacts on quantity and quality of food production. Decline in crops' yields and agronomic production exacerbate food-insecurity that currently affects 854 million people globally, and low concentration of protein and micronutrients (e.g., Zn, Fe, Se, B, I) aggravate malnutrition and hidden hunger that affects 3.7 billion people, especially children. Soil degradation reduces crop yields by increasing susceptibility to drought stress and elemental imbalance. Strategies include: improving water productivity, enhancing soil fertility and micronutrient availability, adopting no-till farming and conservation agriculture and adapting to climate change. There are also new innovations such as using remote sensing of plant nutritional stresses for targeted interventions, applying zeolites and nanoenhanced fertilizers and delivery systems, improving biological nitrogen fixation and mycorrhizal inoculation, conserving and recycling (e.g., waste water) water using drip/sub-drip irrigation etc. Judiciously managed and properly restored, world soils have the capacity to grow adequate and nutritious food for present and future populations.

2.Pesticide for Human Health

Health issues by consuming heavy pesticide food products :

Following are the disease caused by consuming heavy pesticide food prodct and their grade

Human health effects	Grade
respiratory damage (asthma, bronchitis, cancer)	Safety
gestrointestinal infections	Slight pollution
liver problems	Mild Pollution
nerve damage	Moderate pollution
Black lung disease	Severe pollution
lungs cancer	Polluted
Gastro-intetinal disorders	Safety
brain damage and learning problems	Slight pollution
heart disease	Mild Pollution
Impairment of neurological	Severe pollution
renal failure and neurotoxicity	Severe pollution
Irritation of lungs and gastrointenstinal tract	Polluted
brain damage and learning problems	Slight pollution
birth defects and cancer	Mild Pollution
cardiovascular disease	Moderate pollution
pleural mesotheliona	Severe pollution
low bone density	Polluted
kidney damage	Severe pollution
liver damage	Polluted
black lung disease	Safety
thyroid problems	Slight pollution
Carcinogenic	Mild Pollution
pleural mesotheliona	Moderate pollution
asbestos-related pleural abnormalities,	Severe pollution
renal failure and neurotoxicity	Polluted
suppression of the hamatological system	Safety
renal failure and neurotoxicity	Slight pollution
liver and neurological damage,	Mild Pollution
Gastrointestinal tract	Mild Pollution
parenchymal asbestosis,	Moderate pollution
black lung disease	Polluted
lungs cancer	Mild Pollution
Gastro-intetinal disorders	Moderate pollution
brain damage and learning problems	Mild Pollution
heart disease	Moderate pollution
Impairment of neurological	Slight pollution
renal failure and neurotoxicity	Mild Pollution
Irritation of lungs and gastrointenstinal tract	Moderate pollution
brain damage and learning problems	Severe pollution
birth defects and cancer	Polluted
cardiovascular disease	Safety
pleural mesotheliona	Slight pollution
low bone density	Mild Pollution
kidney damage	Mild Pollution
liver damage	Moderate pollution
black lung disease	Moderate pollution
thyroid problems	Severe pollution
respiratory damage (asthma, bronchitis, cancer)	Severe pollution
gestrointestinal infections	Polluted
liver problems	Safety
nerve damage	Slight pollution
Black lung disease	Mild Pollution
lungs cancer	Slight pollution
Gastro-intetinal disorders	Mild Pollution
brain damage and learning problems	Moderate pollution
heart disease	Severe pollution
Impairment of neurological	Polluted
renal failure and neurotoxicity	Severe pollution
Irritation of lungs and gastrointenstinal tract	Polluted
brain damage and learning problems	Mild Pollution
gestrointestinal infections	Moderate pollution
liver problems	Severe pollution

nerve damage	Severe pollution
Black lung disease	Polluted
lungs cancer	Safety
Gastro-intetinal disorders	Severe pollution
brain damage and learning problems	Polluted
heart disease	Safety
respiratory damage (asthma, bronchitis, cancer)	Severe pollution
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Impairment of neurological	Safety
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Gastrointestinal tract	Moderate pollution
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lungs cancer	Polluted
Gastro-intetinal disorders	Safety
brain damage and learning problems	Severe pollution
heart disease	Polluted
Impairment of neurological	Severe pollution
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Carcinogenic	Polluted
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Gastrointestinal tract	Severe pollution
parenchymal asbestosis,	Polluted
liver problems	Safety
nerve damage	Mild Pollution
Black lung disease	Moderate pollution
lungs cancer	Severe pollution
Gastro-intetinal disorders	Polluted
brain damage and learning problems	Severe pollution
heart disease	Polluted
Impairment of neurological	Safety

renal failure and neurotoxicity	Severe pollution
Irritation of lungs and gastrointenstinal tract	Polluted
brain damage and learning problems	Severe pollution
birth defects and cancer	Polluted
cardiovascular disease	Safety
pleural mesotheliona	Polluted
low bone density	Safety
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Gastro-intetinal disorders	Safety
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liver problems	Severe pollution
nerve damage	Polluted
Black lung disease	Safety
lungs cancer	Severe pollution
Gastro-intetinal disorders	Severe pollution
brain damage and learning problems	Polluted
heart disease	Safety
liver problems	Safety
nerve damage	Slight pollution
Black lung disease	Mild Pollution
lungs cancer	Moderate pollution
Gastro-intetinal disorders	Severe pollution
brain damage and learning problems	Polluted
heart disease	Severe pollution
Impairment of neurological	Polluted
renal failure and neurotoxicity	Safety
Irritation of lungs and gastrointenstinal tract	Severe pollution
brain damage and learning problems	Moderate pollution
birth defects and cancer	Severe pollution
cardiovascular disease	Severe pollution
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birth defects and cancer	Severe pollution
Impairment of neurological	Safety
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brain damage and learning problems	Moderate pollution
birth defects and cancer	Severe pollution
cardiovascular disease	Polluted
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low bone density	Polluted
kidney damage	Safety
liver damage	Moderate pollution
black lung disease	Severe pollution
thyroid problems	Severe pollution
Carcinogenic	Polluted
pleural mesotheliona	Safety
asbestos-related pleural abnormalities,	Mild Pollution
renal failure and neurotoxicity	Moderate pollution
suppression of the hamatological system	Severe pollution
renal failure and neurotoxicity	Polluted
liver and neurological damage,	Severe pollution
Gastrointestinal tract	Polluted
parenchymal asbestosis,	Safety
black lung disease	Moderate pollution
birth defects and cancer	Severe pollution
cardiovascular disease	Mild Pollution
pleural mesotheliona	Moderate pollution
low bone density	Severe pollution
kidney damage	Polluted

ygvcliver damage	Safety
black lung disease	Slight pollution
thyroid problems	Mild Pollution
increase miscarriage	Moderate pollution
asbestos-related pleural abnormalities,	Severe pollution
renal failure and neurotoxicity	Polluted
suppression of the hamatological system	Safety
renal failure and neurotoxicity	Slight pollution
liver and neurological damage,	Mild Pollution
Impairment of neurological	Moderate pollution
renal failure and neurotoxicity	Safety
Irritation of lungs and gastrointenstinal tract	Slight pollution
Diabetes	Mild Pollution
liver and neurological damage	Moderate pollution
lung carcinoma	Mild Pollution
liver and neurological damage	Moderate pollution
Irritation of lungs and gastrointenstinal tract	Safety
lungs cancer	Slight pollution
Gastro-intetinal disorders	Mild Pollution
brain damage and learning problems	Moderate pollution
heart disease	Severe pollution
Impairment of neurological	Polluted
renal failure and neurotoxicity	Safety
Irritation of lungs and gastrointenstinal tract	Slight pollution
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birth defects and cancer	Moderate pollution
cardiovascular disease	Safety
pleural mesotheliona	Slight pollution
low bone density	Mild Pollution
kidney damage	Moderate pollution
liver damage	Safety
black lung disease	Slight pollution
thyroid problems	Mild Pollution
birth defects and cancer	Moderate pollution
carcinogenic (by inhalation)	Severe pollution
gestrointestinal infections	Polluted

Conclusion

The experiment is conducted for this proposed approach with the dataset collected from the Agricultural department. This research make use of three data set namely soil data to analyse soil degradation, pesticide usage data to predict the cause of over usage of pesticide, Health data which reveals the disease caused by over usage of pesticide .Even though there exist many classification algorithm the challenge lies in classification accuracy and to choose best fit algorithm to classify agricultural data.

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