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Quality Assessment of Soil Properties Available In Various Selected Villages of Vijayapur District, Karnataka State.

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Abstract: *Soil analysis data are used to guide management decision. An investigation was under taken in 12 Taluka's (36 samples) of Vijayapur district to assess pH, electrical conductivity, organic matter, N, P, K and other physicochemical parameters. And also asses the symptoms like fluorosis, necrosis in plants. This compilation includes macro and micronutrients concentration as well as cation exchange capacity data and other 12 parameters. lant diseases csed by nutrient deficiency in soil.*
1.Chlorosis2.Necrosis3.Interveinal chlorosis4. Leaf curling5.Purplish red coloring
The agriculture sector in India has begin using chemical fertilizers like N,P & K as nutrients with an idea of growing more quantity of food to feed its fasted growing population. As a result the consumption of this synthetic fertilizer has increased from 65 million tons to 16094. The consequences are clear that the fertility of the soil has increased to some extent i.e., up to 1985-90 but later the soil started losing its fertility. Keywords:
Keywords: *Fluorosis, necrosis. Pathogenic organisms in contaminated soil, Pathogenic organisms excreted by man, Soil pH, Humidity, micro-macro nutrients.*

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I. Control of soil pollution

Soil pollutants, such as the domestic sewage undergoes decomposition by natural processes i.e. by the action of micro – organisms as bacteria, fungi, protozoa, and other microbes. New technologies, established bio – gas plants in which by treating the unwanted garbage (domestic sewage).Septic tank, is an underground sewage container made of concrete. Waste solid material settle at bottom of the tank and form the sludge, the sludge is slowly digested by sewage bacteria. The sludge should be periodically pumped out and hauled to a sewage treatment plant for final disposal. The solid waste (sludge) remains after sewage treatment. However, handling and disposal of sludge is a major problem for treatment plant operators.

Disposal of solid waste is not an easy, since the economy involved is quite expensive. To make the disposal of wastes more economical, recycling and re – use of material is essential. Hence control measures include primary the methods for the solid wastes to be reduced and to dispose it safely.

Experimental Procedures
Determination of soil moisture:
Gravimetric method:
This method is generally used as a check for all other
methods. In this method a soil sample is taken in a crucible (container) and weighed in the moist condition. Then it is oven dried and weighed again after cooling.
The drying in the oven is carried out at 1050c – 1100c to constant weight. Drying takes about 2 hours for small samples, but as much as a day for bulky clay soil samples. The mass water percentage is calculated on the basis of dry soil weight as follows:
Weight of moist or wet soil = w1grams = 15grams.
Weight of oven dry soil = w2grams = 10grarms.
Weight of mass of moisture = (w1-w2) grams = 05grams.

Percentage = (w1-w2) x 100 / w2 = 5x100 / 10= 50%

Determination of water holding capacity: [Moisture-Content in Soil]:

The strength and stability of soils in almost all cases depend upon its moisture content and hence it is in variably required to find out the moisture content in the soil.

The moisture content in a soil may vary from near saturation stage to a very small quantity acquired by the soil when in contact with atmosphere, the quantity of water (moisture) acquired from a part of all the elaborate laboratory tests in soil mechanics.

Gravimetric – Method:
For measuring soil moisture the simplest and most widely used method. Weighed soil sample is placed in an oven at 1050c and it is dried to constant weight. The weight difference is considered to be water present in soil sample.

$$\text{Percentage of moisture} = \frac{\text{loss in weight x 100}}{\text{Oven dry wt. of soil.}}$$

Procedure:
1. Weight the empty moisture can (Crucible with lid)
2. Take soil sample about 100gr from the required depth with the help of anger.
3. Put soil sample immediately in a moisture can and close it to prevent loss of moisture by evaporation.
4. Bring the cans containing the moist soil to the laboratory and weigh immediately.
5. Remove the lids and place moisture cans in over to a constant weight at 1050c. This takes approximately 46 hours.
6. Allow the sample to cool for some time in oven. Then close the cans and pat them in desiccators for further cooling. Now weigh the close cans with the oven dry soil.

Observations:
1. Weight of empty moisture can = x
2. Weight of can + moist soil = y
3. Weight of moisture can + oven dry soil = z

Calculations:
Moisture content in soil = y – x
Wt. of oven dry soil = (z - x)
% of moisture in soil = loss in weight X100 / weight of oven dry soil.
% of moisture in soil = (y-z) x 100 / (z-x)

Soil pH and Conditions:

Soil pH	Soil Condition
< 6.00 6.00 to 8.50 8.50 to 9.00 & above	Acidic – soil Neural to saline Tending towards alkaline

II. Results And Discussion

The soil analysis results reveal that behaviour of soils and various parameters such as Bulk – density, water holding capacity, texture. The chemicals parameters like pH, EC, sodium and calcium carbonate. Major nutrients such as organic carbon, available and total nitrogen, available phosphorus and available potash. Secondary nutrients – Calcium, Magnesium and Sulphur in the form of sulphate. Micro – nutrients Iron, Manganese, Zinc, Copper, Boron, and Molybdenum. The research work has taken to know the soil salinity, nutrients assessment – a case study on the soil salinity in the region of Vijayapur and Belgaum districts (River Krishna and Bhima belt) fed by lift irrigation - challenges and measures. The detailed analysis of results of the soil from the selected location of Belagavi and Bijapur districts, indicating the fertility status of cultivated areas due to the flood and heavy irrigation effects.

The soil samples were collected and analyzed the Physico-chemical parameters and nutrient status as per the standard procedures from various irrigated lands of three taluks of Vijayapur district Viz: Mannur of Bagewadi taluq and Yankanchi of Sindagi taluk. Similarly Babanagar of Tikota, Yakkundi of Babaleshwar, Anjutagi of Indi taluq, Kaggod of Vijayapur, Hirur of Muddebihal The soil analysis was carried out in various seasons – Monsoon, Post – Monsoon and Pre- Monsoon. The soil samples were investigated and analyzed using standard methods as explained earlier. The analysis results were suggested to the concerned formers for improvement of fertility of the cultivated lands. The formers have incorporated the suggestions. The scope of the project work is to carry out the fertility of the soil samples of same lands during different seasons of the year for checking of the fertility status. Approximately 09 samples of heavy irrigated lands belonging to 09 formers of the Vijayapur district have been investigated during 2018 The experimental analysis, suggestions &

information, fertilizer recommendations, soil salinity conditions and awareness given to the formers regarding the soil health conditions represented in **Tables 1 to 08 .** The deficiency of soil test based nutrients availability status of Taluks in percentage reported in **Table 09**, this shows the taluk-wise formers Lands soil health status and deficiency in available nutrients in percentage.

TABLE 09
SOIL FERTILITY STUTUS
Soil Test based Nutrient availability status of Vijayapur District in Percentage.
(Percentage Deficiency)

District	OC (%)	N (%)	P (%)	K (%)	S (%)	Zn (%)	B (%)	Fe (%)	Cu (%)	Mn (%)	Mo (%)
VIJAYAPUR	**25.0**	**30.6**	**48.6**	**30.6**	**58.3**	**54.9**	**36.8**	**51.4**	**09.7**	**39.6**	**03.5**
(Taluks)	**25.2**	**30.4**	**46.5**	**26.9**	**45.9**	**45.6**	**35.6**	**48.9**	**10.2**	**29.8**	**3.4**

Taluk-wise Farmers Lands soil health status
And
Deficiency in Available nutrients.
(Percentage Deficiency)

TALUK	OC (%)	N (%)	P (%)	K (%)	S (%)	Zn (%)	B (%)	Fe (%)	Cu (%)	Mn (%)	Mo (%)
VIJAYAPUR Kaggod	**25.0**	**30.6**	**48.6**	**30.6**	**58.3**	**54.9**	**36.8**	**51.4**	**09.7**	**39.6**	**03.5**
INDI Anjutagi	33.3	79.2	62.5	04.1	16.6	37.5	54.2	62.5	Ok	29.2	12.3
BABALESHWAR Yakkundi	04.2	33.4	58.0	12.5	66.6	45.8	33.3	62.5	Ok	29.2	08.4
SINDAGI Yenkanchi	25.0	12.5	75.0	41.7	66.7	50.0	37.5	66.7	Ok	58.3	Ok
TIKOTA Babanagar	20.8	41.7	41.7	33.4	50.0	75.0	33.4	54.2	16.7	41.7	Ok
MUDDEBIHAL Hirur	33.3	Ok	33.4	45.8	100.0	58.4	33.4	41.7	08.3	25.0	Ok
BAGEWADI Mannur	33.3	16.7	20.8	45.8	50.0	62.5	29.2	20.8	33.3	54.2	Ok

III. Conclusion

Among 9 soil samples analysed except few samples are under permissible limits of WHO guidelines out of them all are moderately high in permissible limit. From our project report finally we concluded that the soil which has less deficiency of nutrients they possess good characterstics of soil quality.

Indi Taluka's soil shows good quality which has less deficiency of nutrients. Muddebihal taluk has more nitrogen content in soil. Totally this project study shows soil properties available in various selected villages of Vijayapur district, Karnataka state.

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