PERSPECTIVES ON ENVIRONMENT DEGRADATION AND AGRARIAN CRISIS IN INDIA

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Ideal International E-Publication Pvt. Ltd.

Pravara Medical Trust's

Arts, Commerce and Science College

Shevgaon, Dist. Ahmednagar

Proceedings of Seminar on

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2018

Ideal International E – Publication Pvt. Ltd.

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Title:	Proceedings of Seminar on Perspectives on Environment Degradation and Agrarian Crisis in India.
Editor(s):	Dr. Onkar Rasal, Dr. Yuvraj Patil Narawade
Edition:	First
Volume:	I

ISBN: 978-93-86675-30-9

PREFACE

Economic development during post reforms period have drastically change an environment of the country. According to the models of economic growth and development; development at the cost of environment will never helps to achieve the goal of inclusive and sustainable development. Mere negligence of the agrarian and environmental issues in the policy domain will further worsen the situation. Day by day declining quality of the environment will leads to the multiplier effects on the factor productivity. This has further increase in the cost of production as well as declining production. And lastly it has resorted at the grave issues like unemployment and inflation. In this situation the agrarian community suffers badly.

Agrarian relations in India had undergone a sea-change during the period of green revolution in general and to that of last two decades of economic reforms in particular. One of the serious outcomes of these changes is the incidence of suicides of farmers in different states of the country. Changes in agrarian relations occurred due to the changing policies and change in ecology. Changing macroeconomic policies and other changes led to the gross neglect of agriculture consisting of 60 per cent of the population and one fifth of the electorate. This took agriculture and rural economy towards distress. The number of suicide cases in rural parts has been mounting in last fifteen years. During the period of 1995 to 2012 (2, 87, 967) farmers has been committed suicide in the country. Since the mid 1990s, large section of farm households have been facing a distress as a consequence of decline in agricultural income and loan repaying capacity and increased debt burden. Rain-fed areas are particularly prone to year to year fluctuations in production and degradation in environmental resources. In the present book we tried to analyze and criticize the reciprocal relationship between the agrarian reforms and environmental degradation. As well as it also focuses on the functional relationship between climate changes, declined agricultural productivity, unremmunarative profession and thereby agrarian crisis and farmers suicides in India.

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Soil Analysis From Near The Lake Of Kapurwadi

Miss.Waghmare Rupali Sahebrao

Abstract:

Soil is mixture of organic matter, minerals, gas, liquids, and organisms that together support life. The earth body of soil is the pedosphere. which has four important functions: it is a means of water storage, supply and purification; it is modifier of earths atmosphere; it is habitat for organism; all of which in turn, modify the soil. In the present study indicates the physiochemical properties of soil. The soil sample is collected from near the kapurvadi lake which is located in Ahmednagar district of Maharashtra. The area selected near the lake because of the lake has 8 months water availability. The purpose of this study is to identify the characters of soil by using different parameter and analyzed the soil, the colour, texture, temperature, moisture, percentage water holding capacity, electrical conductivity, pH, organic carbon.etc. & to help the farmers of that area .From this study we can conclude that the characters of given soil sample are good & it is suitable for the cultivation of crops, vegetables, especially cash crops.

Keywords: Ph, electrical conductivity, organic carbon, pedosphere,

Introduction

The soil is developed by the weathering of rocks present in nature & differentiated into horizons of various heights & characters. The soil is always different from its parent material as the morphological, chemical & biological characters are concerned.

The soil is natural medium for plant growth and supplies the required nutrients to the growing plants some soil are more productive those contain adequate amount of all essentials elements in the form readily available to plants. For good plant growth the soil should also be in good physical condition which ensures proper supply of air & water.

The soil consists of five major component: mineral matter, organic matter, air water & microorganism. Mineral matter forms the bulk of soil (more than 90% by weight) Almost all the element found on the earth present in the soil, however, most of them occur in trace quantities.

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Soil of moderate texture is supposed to be very good for the growth of plants, as they supply moderate quantities of nutrients, air & water to the plants. The soil productive capacity, in most cases, can be evaluated satisfactorily by determining chemical, physical & microbiological properties of soil. Oil sampling is perhaps the most vital step for any soil analysis. As a very small fraction of the huge soil mass is used for analysis, it becomes extremely important to get a truly representative soil sample of the field. Soil test based nutrient management has emerged as a key issue in efforts to increase agricultural productivity and production since optimal use of nutrients, based on soil analysis can improve crop productivity and minimize wastage of these nutrients, thus minimizing impact on environmental leading to bias through optimal production. Deficiencies of primary, secondary and micronutrients have been observed in intensive cultivated areas.[1]

The present soil sample is collected from near the lake of kapurwadi located in Ahmednagar District. The study soil from this area was done by using different parameters

MATERIAL & METHODS

The presented soil sample were collected in the depth of 0-20 cm from the surface of the soil from the area near the kapurwadi talav. Samples collected were thoroughly mixed on a piece of clean cloth, air dried and the lumps were broken using wooden pestle and mortar (Tandon. 1993). Particles were disaggregated, crushed.The soil sample were preserved in polythene bags for further analysis. The chemicals & reagents usd for analysis were of A.R. grade from S.D.Fine Merck standard instrumental & non instrumental method are used for estimation of the mentioned parameter.

Sr. No.	Soil Parameter	Result
01	Soil Colour	Black
02	Soil Texture	Clay and Loamy
03	Temperature	20℃
04	Moisture Percentage	47.05%
05	Water Holding Capacity	65.70%
06	Conductivity	0.35 at 25℃
07	pH	6.94
08	Organic Carbon	0.52%

Soil has various colours because of its chemical properties. The colour studied soil sample is determined by spreading a soil uniformly over a petriplate and note down the colour is black.

In the field texture is determined by feel or rubbing the soil between the thumb and fingers. It is rapid procedure and proficiency is gained through experiment trial and with known textural class. 1) A small quantity of dry soil is moistened and mixed thoroughly on a glass or porcelain dish.2)From this soil, a soft ball and then ribbon is formed .3) While forming a ball and ribbon, note down the feeling by fingers, case of forming ball stickiness or grittiness whether forming soil ribbon or merely crumbing.

Soil temperature is an important parameter which affects the germination and establishment of the seedling. Soil thermometer was used for temperature measurement. The cone of soil is inserted up-to desired depth and note the reading directly on the item which is in open air.

Moisture percentage of soul is determined by taking fresh 100gm soil sample in pre-weighted beaker and placed it in oven for 24 hours at 70℃ for drying .weighing again the beaker possessing dry soil and calculated the moisture percentage .

Weight of empty beaker = 60gm

Weight of fresh soil =100gm

Weight of dry soil + beaker =128gm

Therefore weight of dry soil =128-60 gm=68gm

Moisture content of soil =100-68=32gm

68gm of soil contain =32gm of moisture

100 gm of soil will contain =32x100=47.05 %

Water holding capacity of soil is determined by allowing the soil sample to dry and taking a tin box with perforated bottom. weighing the filter paper after placing the filter paper at the bottom of box fill the ox gradually with soil. placing soil filled box in a Petridis containing water allow it to remain together over night weight box once again. pacing the container in an oven at 105℃ for 24 hrs. till constant weight is attained. record the weight. Taking the few filter paper tip in outer and find out average water absorbed by the container. Repeated this procedure 5 times

Calculations :

Weight if dry filter paper = 6gm

Weight of dry soil =5 gm

Weight of dry filter paper + weight or dry soil =0.6 + 5 =5.6 gm

weight of wet soil + weight of dry filter paper = 9.25-5.6 = 3.65

weight of dry soil + weight of dry filter paper

Therefore, water holding capacity

$$= \frac{\text{Amount of water in soil}}{\text{Weight of dry soil + Weight of dry filter paper}} \times 100$$

$$\frac{3.65}{5.6} \times 100 = 65.17$$

Electrical conductivity (EC) expresses ion contents of solution which determine the current carrying capacity thus giving a clear idea of the soluble salts present in the soil. The electrical conductivity of a soil samples was determined on an Equiptronics digital electrical conductivity bridge for which 20g soil was added in 40ml distilled water. The suspension was stirred intermittently for half an hour and kept it for 30 minutes without any disturbances for complete dissolution of soluble salts. The soil was allowed to settle down and then conductivity cell was inserted in solution to take the reading to record the EC values.

pH value was determined by using electric pH meter,for this 10 gm of soil sample was mixed with 25 ml of distilled water and with help of glass rod shake the mixture to an hour.

Organic matter is useful in supplying nutrients and water to the plants and also provides good physical conditions to the plants. The quantity of organic carbon in the soil was estimated by using modified Walkey- black method (Walkey and black, 1934) as described by Jackson (1967). 1g finely ground dry soil sample was passed through 0.5mm sieve without loss and was taken into 500ml conical flask. To this 10ml of 1N potassium dichromate and 20ml con. H_2SO_4 were added and the contents were shaken for a minute and allowed to set aside for exactly for 30 minutes and then 200ml distilled water, 10ml phosphoric acid and 1ml diphenylamine indicator were added. The solution was titrated against standard ferrous ammonium sulphate till colour changes from blue violet to green. The blank titration was also carried without soil.

RESUIT AND CONCLUSION:

The studied soil sample from near the kapurwadi talav show variation in nature.Different physiochemical parameters found as follows.The colour of studied soil

sample was black and black colour having considerd and good quality for different crop production specially like cotton crops.soil texture of given sample were recorded clay and loamy type.temprature were recorded 20c it may be due to collection season.Moisture percentage of sample were found about 47.05% as it considerd as a good nature.65.70% water holding capacity indicates good water holding capacity,commercial crop can be taken like sugarcane and vegetables are recommended for this nature.

Electrical conductivity value ranges to 0.35 at 25c Electrical conductivity is used to estimate the soluble salt concentrations in soil and is commonly used as a measure of salinity. An examination of soil samples (Table 1) shows that the values for pH range from. 6.94 indicating that the soils are a neutral and hence appropriate value not acidic or basic that result into favourable conditions for all types of crops. The organic soil matter includes all the dead plant materials and live or dead animals. Most living things in soils, including plants, insects, bacteria and fungi, are dependent on organic matter for nutrients and energy. Soils have varying organic compounds in varying degrees of decomposition.The oraganic carbon range is 0.52%. Organic matter holds soils open, allowing the infiltration of air and water, and may hold as much as twice its weight in water.the organic carbon was 0.52 % present.From all this studied parameter I come to the coclusion that the nature of soil is good for farming and specially for commercial crop.

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About the Editors

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Uncertainty and adequacy are the fundamentals characteristics of the indian monsoon. variations in the mansoon affect the agricultral production. However, the agricultural in maharashtra is camparatively developed in india. But at the same time, there have been huge amount of disparities in agrucultural development in the state. Adequate irrigation facilities are the prerequisite for the sustainable development of the sector. Over the year s there is increase in number of failure of indian mansoon. It is an outcome of the changing nature of climate and moreover, the increase in temperature of earth surface. I strongly believe that to come up with the problem we need along term constructive policy measure. As well as the people participation is the prerequisite while coping with the problem of climate change. I congratulate the orgniser for the conducting the academic discussion on this burning issue. The academic debate on this vital issue will be helpful for designing the long term policy on climate change and Agrarian Crisis. I wish greate success for these seminars.

Hon'ble Dr. Rajendra Vikhe Patil

Trustee And Secretory Pravara Medical Trust , Loni

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