

Red Soil Quality Improved By Using the Spent Wash

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Abstract

Analysis of soil quality from shirala area of Sangli district – Red soil.

This paper gives the information of chemical characteristics on soil compaction measurements through pH, electrical conductivity, potassium, phosphorous, organic carbon, magnesium, calcium, sulphur, nitrogen and micro elements iron, copper, zinc, manganese. The presence of industrial waste (spent wash) was given in soil effects on the soil compaction characteristics. The results of the study are shown that total amount of some elemental composition are increases, but it has higher than that of the standard limit. The present study reveals the comparison between the initial fertility of and after one year fertility of soil after using the spent wash. As per the above observation less amount of fertilizer are required automatically to increase the production and decrease the production cost. (4,5,11,12,13)

KEYWORDS: Soil; Fertility; Micronutrients.

Introduction:

"Recently we talk about we are going on twenty one century but yet still may not know the farmers how to use the fertilizer this relatively sample tool to increase fertilizer profitability producers still apply fertilizers where none is required or at higher rates than required to optimize yields. If we compare production cost and beneficial cost, than small difference was observed. In Maharashtra, there are a number of alcohol industries, in these industries in the form of byproducts spent wash are given out. In all of these industries this spent was stored in large tank and in many season discharge into the river. The side effect was observed if deduction of side effect than this spent wash is used in the soil. Then fertility of soil increases, due to this reason production cost decreases because less amount fertilizers are required. In this paper sample are collected spent wash given and it keep in large tray after one year the sample analyzed it good results was observed this things was maintained into this paper. (1,6,11)

Methods of Analysis:

1) **Collection of the Sample:** Sample is collected as per the recommended procedure.(1,2,3)

2) **Required Chemicals:** All of the chemicals are prepared as per the recommended procedure. All of the chemicals are used AR grade.(10)

3) **Instruments(9)**

a) PH meters- Model EQ-610

b) Conductivity Meter- Model EG-660

c) Atomic Absorption Spectro Photo Meter-Model-Elico-SL-194

d) Spectro Photo Meter- Model-Elico-SL-159

e) Flame Photometer-Model-Elico-CL-378

Analyzed Results:

The samples are collected as per the recommended procedure and original sample taken from analysis the results are found these results are as given below – (3,4,5,8,12,13)

Table 1

Sr.No	Parameter	Unit	Observed value	Limit
1.	pH	--	7.03	6.5-8.5
2	E-Conductivity	Mmhos/cm	0.10	<4.0
3.	Nitrogen	Kg/ha	52.17	100-200
4.	Phosphorous	Kg/ha	28.36	30-40
5.	Potassium	Kg/h	190	110-280
6.	Sulphur	Kg/ha	156	114-1823
7.	Calcium	%	0.22	0.1-3.2
8.	Magnesium	%	0.25	0.1-0.3
9	Organic Carbon	%	0.55	>0.50
10	Iron	ppm	2.52	2.5-4.5
11	Manganese	ppm	0.43	1.0-2.0
12	Zinc	ppm	0.35	0.5-1.2
13	Copper	Ppm	0.38	0.3-0.5
14	Chloride	ppm	132	141-425

The selected soil sample taken and spent wash was sprayed on it and then after 1 year sample dried and given analysed the following results are found.

–(3,4,5,8,12,13)

Table 2

Sr.No	Parameter	Unit	Sprayed Observed value	Limit
1.	pH	---	7.8	6.5-8.5
2	E-Conductivity	Mmhos/cm	13.53	<4.0
3.	Nitrogen	Kg/ha	421	100-200
4.	Phosphorous	Kg/ha	68.00	30-40
5.	Potassium	Kg/h	448	110-280
6.	Sulphur	Kg/ha	206	114-1823
7.	Calcium	%	0.97	0.1-3.2
8.	Magnesium	%	0.19	0.1-0.3
9	Organic Carbon	%	1.10	>0.50

10	Iron	ppm	9.00	2.5-4.5
11	Manganese	ppm	2.30	1.0-2.0
12	Zinc	ppm	3.00	0.5-1.2
13	Copper	ppm	2.05	0.3-0.5
14	Chloride	ppm	150	141-425

The results of original sample table 1 and results of sprayed sample table 2 and standard value results all of these results are compared as given below

Table 3

Sr.No	Parameter	Unit	Observed value	Sprayed Observed value	Limit
1.	pH		7.03	7.8	6.5-8.5
2	E-Conductivity	Mmhos/cm	0.10	13.53	<4.0
3.	Nitrogen	Kg/ha	52.17	421	100-200
4.	Phosphorous	Kg/ha	28.36	68.00	30-40
5.	Potassium	Kg/h	190	448	110-280
6.	Sulphur	Kg/ha	156		114-1823
7.	Calcium	%	0.22	0.97	0.1-3.2
8.	Magnesium	%	0.25	0.19	0.1-0.3
9	Organic Carbon	%	0.55	1.10	>0.50
10	Iron	ppm	2.52	9.00	2.5-4.5
11	Manganese	ppm	0.43	2.30	1.0-2.0
12	Zinc	ppm	0.35	3.00	0.5-1.2
13	Copper	ppm	0.38	2.05	0.3-0.5
14	Chloride	ppm	132		141-425

Sprayed sample results comparing the results of original sample as well as standard limit value. In these results some difference is observed in these values. These difference is maintained on table no.4. -(3,4,5,8,12,13)

Table 4

Sr.No	Parameter	Unit	Increasing value	Limit
1.	pH	-	0.77	6.5-8.5
2	E-Conductivity	Mmhos/cm	13.43	<4.0
3.	Nitrogen	Kg/ha	368.83	100-200
4.	Phosphorous	Kg/ha	39.64	30-40
5.	Potassium	Kg/h	238	110-280
6.	Sulphur	Kg/ha	50	114-1823
7.	Calcium	%	0.75	0.1-3.2
8.	Magnesium	%	0.06	0.1-0.3
9	Organic Carbon	%	0.55	>0.50
10	Iron	ppm	6.48	2.5-4.5
11	Manganese	ppm	1.87	1.0-2.0
12	Zinc	ppm	2.65	0.5-1.2
13	Copper	ppm	1.67	0.3-0.5
14	Chloride	ppm	12	141-425

Conclusion

Initially all parameters of soil sample are analyzed. These observed parameters and its value are pH, e-conductivity, nitrogen, phosphorous, potassium, sulphur 7.03, 0.10, 52.17, 28.36, 190, 156 kg/ha and calcium, magnesium, organic carbon 0.22, 0.25, 0.55% as well as microelements are saw iron, manganese, zinc, copper, chloride its value 2.52, 0.43, 0.35, 0.38, 132 ppm (table no.1).

Then spent wash was sprayed on the soil and after one year sample analyzed all of these parameters values are pH, e-conductivity, nitrogen, phosphorous, potassium, sulphur, 7.8, 13.53, 421, 68, 448, 206 kg/ha and calcium, magnesium, organic carbon 0.97, 0.19, 1.10% as well as microelements are analyzed iron, manganese, copper, chloride the value was found 9.00, 2.30, 3.00, 2.05, ppm (table no.2).

If we are compare the initial original, sample value and after spraying spent wash value some difference was observed (table no. 3). All of these values are higher than that of standard limiting values. In table no.4 total growth of content analyzed it.

From above observations, it is concluded that initial sample values (before spraying spent wash) are less than that of standard limiting values, and after spraying spent wash the values are higher than that of initial values and than that of the limiting standard values pH 0.77, e-conductivity 13.43 M mhos/cm, Nitrogen, phosphorous, potassium, sulphur 368.83, 39.64, 238, 0.50 kg/ha respectively. Calcium, magnesium, organic carbon 0.75, 0.06, 0.55% and micro elements iron, manganese, zinc, copper, chloride- 6.48, 1.87, 2.65, 1.67, 12 ppm this much amount of growth observed in all of the parameter.

Again one of the most important thing is colour of the soil is black but after spraying spent wash. Initially soil practical are bind loosely then after it bind tightly all of the parameters increases due this reason crop yield increases. Generally in this area soybean, sugarcane, rise, sunflower, maize crops etc. taken.

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