



Research Paper

“Assessment of Soil Properties of Central Farm - B - Block of MKV, Parbhani”

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Received 16 December, 2014; Accepted 25 December, 2014 © The author(s) 2014. Published with open access at www.questjournals.org

ABSTRACT:- The present investigation was carried out to assess fertility status of Central Farm - B - Block of MKV, Parbhani. Total one hundred surface soil samples were collected from Central Farm - B - Block of MKV, Parbhani. These soil samples were analyzed for physico-chemical properties and fertility status of soil. The data revealed that the soils of - B - block were neutral to alkaline in soil reaction, safe in electrical conductivity, low to high in organic carbon content and non-calcareous to calcareous in nature. According to the concept of “soil nutrient index” in general the status of available nitrogen, phosphorus, sulphur and zinc were “low”. While “high” in content of available potassium, calcium, magnesium, Iron, copper, manganese and Boron content in soils of B - block. The pH and organic carbon of these soils was found to be positive in respect with available N, P, and K. Thus, it can be concluded that the physico-chemical properties like pH, EC, organic carbon and CaCO₃ contents alone or in combination controls the availability of nutrients. Hence, build up of organic carbon status by different means is a practicable tool in our hands to minimize deficiency area of these soils with reference to nitrogen, phosphorus, iron and zinc in these soils.

Keywords: - Physico-chemical properties, Fertility status, SOIL SITE SUITABILITY, MKV Parbhani

I. INTRODUCTION

In Maharashtra, most of the soils have developed over basaltic parent materials and are heavier in texture and productive. The parent material is the main source of many plant nutrients. These determine the physical properties of soil such as texture, structure, water holding capacity and improve nutrient availability in the soils. Parbhani belongs to the Godavari peninsular region situated on the northern side of Marathwada. The northern part of district is highly and mountainous having excessive relief. The district is covered by basaltic lava flow. The climate of the district is sub-tropical, monsoon type with mild winter and hot summer. Soil fertility is one of the important factor contributing yields of the crops. The major and minor nutrients govern the fertility of the soil and control the yields of the crops. Soil characterization in relation to evaluation of fertility status of the soils of an area or region is an important aspect in context of sustainable agricultural production. Because of imbalanced and inadequate fertilizer use coupled with low efficiency of other inputs, the response (production) efficiency of other chemical fertilizer nutrients has declined tremendously under intensive agriculture in recent year (Meena *et al.*, 2006). The information with respect to physico-chemical properties and availability of macro as well as micronutrients of the study area was lacking. Therefore, the present investigation was planned to study the “Assessment of Soil Properties of Central Farm - B - Block of MKV, Parbhani”

II. MATERIAL AND METHODS.

Description of study area: The study area covers an area of 193 hectares and consists of 24 blocks. The soils are developed on basaltic and metamorphic rocks of varying age and also on alluvium derived from such rocks. The study area comes under zone of assured rainfall zone where tropical climatic conditions often exist.

Collection of soil samples: one hundred surface soil samples were collected, completely air dried, passed through 2 mm sieve and stored in properly labeled plastic bags. The soil pH, EC, Organic Carbon,

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available K, Exchangeable Ca, Mg were estimated by the standard procedures as described by Jackson (1973). The available N was analyzed by using alkaline potassium permanganate (Subbaiah and Asija, 1956). Available S was determined by using 0.15% CaCl₂ solution. The micronutrients in these soil samples were extracted with DTPA solution (Lindsey and Norvell, 1978). The soil nutrient index was calculated according to the procedure given by Parker (1956). On the basis of soil site characteristics suitability criteria given by NBSS and LUP (1994) suitability of various crops was determined.

III. RESULT AND DISCUSSION

The results of study presented in Table 1 indicated that all the soil samples of Central Farm - B - Block of MKV, Parbhani were neutral (87) to alkaline (13) in soil reaction, safe in electrical conductivity (100), low (35) to high (19) in organic carbon content and non-calcareous (19) to calcareous (81) in nature. The pH of soil samples varied from 7.03 to 8.01 in Central Farm - B - Block of MKV, Parbhani. It may be due to formation of these soils from basaltic parent material rich in basic cations. Similar results were reported by Padole and Mahajan (2003). EC of soil samples varied from 0.10 to 0.75 dSm⁻¹ in Central Farm - B - Block of MKV, Parbhani. The organic carbon content was varied from 1.1 to 9.3 g kg⁻¹ in Central Farm - B - Block of MKV, Parbhani. It indicates that majority of these soils were low to high in organic carbon content. The high content of organic carbon might be due to addition of organic matter through either artificially or naturally and its subsequent decomposition. These results were confirmatory with results reported by Waikar *et al.* (2004). The free CaCO₃ content was varied from 2.0 to 108 g kg⁻¹ in Central Farm - B - Block of MKV, Parbhani indicating non-calcareous to calcareous nature of these soils.

Table No 1. Chemical properties of soils of central farm - B - block of MKV, Parbhani

SR.NO	Block No	pH	EC (dSm ⁻¹)	Organic carbon (g kg ⁻¹)	CaCO ₃ (g kg ⁻¹)
1	29	7.67-7.73 (7.70)	0.25-0.36 (0.31)	5.2-6.6 (5.90)	62.0-79.0 (68.3)
2	27	7.73-7.86 (7.79)	0.27-0.41 (0.34)	7.8-8.2 (8.0)	74.0-84.0 (79.00)
3	22	7.75-7.83 (7.78)	0.32-0.41 (0.36)	5.6-7.9 (6.60)	52.0-78.0 (69.2)
4	23	7.71-7.79 (7.75)	0.3-0.39 (0.34)	4.8-8.5 (6.3)	38.0-88.0 (65.2)
5	25	7.74-7.75 (7.74)	0.33-0.37 (0.34)	6.6-6.8 (6.7)	50.0-69.0 (60.0)
6	26	7.71-7.74 (7.72)	0.31-0.32 (0.31)	4.1-8.1 (6.1)	62.0-64.0 (63.0)
7	28	7.12-7.77 (7.47)	0.35-0.73 (0.51)	1.1-7.4 (3.8)	58.0-78.0 (67.8)
8	30	7.15-7.5 (7.30)	0.59-0.72 (0.65)	7.4-7.9 (7.7)	42.0-80.0 (62.0)
9	21	7.66-7.92 (7.78)	0.45-0.75 (0.56)	4.5-5.9 (5.0)	49.0-82.0 (61.0)
10	22SB	7.4-7.7 (7.61)	0.35-0.52 (0.42)	4.1-6.6 (5.6)	28.0-80.0 (47.6)
11	23SB	7.24-7.93 (7.74)	0.41-0.66 (0.49)	1.1-9.3 (5.9)	44.0-89.0 (68.0)
12	24SB	7.75-7.86 (7.79)	0.47-0.51 (0.48)	4.5-6.7 (5.8)	34.0-64.0 (49.5)
13	24	7.61-7.92 (7.73)	0.3-0.71 (0.48)	2.4-7.8 (4.7)	32.0-72.0 (50.6)
14	27SB	7.76-7.90 (7.84)	0.29-0.40 (0.35)	2.7-8.8 (5.7)	63.0-89.0 (75.4)
15	25/26SB	7.81-7.92 (7.85)	0.32-0.54 (0.39)	1.7-9.0 (6.0)	42.0-99.0 (67.7)
16	8	7.85-7.91 (7.87)	0.28-0.40 (0.35)	4.1-8.5 (6.1)	30.0-56.0 (41.6)
17	9	7.21-7.96 (7.65)	0.27-0.41 (0.33)	2.4-8.5 (5.9)	29.0-82.0 (55.0)

18	10	7.32-7.99 (7.80)	0.1-0.36 (0.27)	3.1-5.9 (4.8)	40.0-79.0 (63.0)
19	20	7.15-7.90 (7.48)	0.26-0.37 (0.32)	1.7-7.2 (4.2)	42.0-68.0 (55.5)
20	16	7.25-7.89 (7.56)	0.25-0.41 (0.33)	3.1-7.8 (5.9)	61.0-108.0 (90.5)
21	37	7.03-8.01 (7.53)	0.3-0.43 (0.37)	4.5-7.9 (5.7)	62.0-83.0 (73.0)
22	17	7.62-8.01 (7.90)	0.35-0.42 (0.38)	2.2-6.0 (3.9)	60.0-92.0 (73.6)
23	18	7.89-7.97 (7.91)	0.28-0.37 (0.33)	3.1-7.2 (4.7)	59.0-100.0 (76.2)
24	19	7.78-7.89 (7.83)	0.36-0.37 (0.36)	7.2-9.3 (8.2)	54.0-59.0 (56.5)

(Figures in parenthesis indicates average value)

**Table No: 2 Available Primary and Secondary Nutrient Status
of Soils of central farm - B - block of MKV, Parbhani.**

SR.NO	Block No	N (kg ha⁻¹)	P₂O₅ (kg ha⁻¹)	K₂O (kg ha⁻¹)	Ca (Cmol (p⁺)kg⁻¹)	Mg (Cmol (p⁺)kg⁻¹)	S (mg kg⁻¹)
1	29	183.02-231.19 (212.68)	1.36-10.87 (7.07)	408.0-448.0 (432.38)	16.3-26.1 (22.51)	14.26-23.98 (18.14)	5.89-6.12 (5.97)
2	27	274.54-288.99 (281.76)	6.76-8.67 (7.71)	677.6-706.72 (692.16)	21.4-44.7 (33.05)	17.48-24.69 (21.08)	6.16-7.47 (6.81)
3	22	197.47-279.35 (232.39)	5.89-7.3 (6.71)	520.8-801.92 (630.56)	22.5-30.4 (27.77)	11.78-20.97 (16.29)	5.96-10.68 (9.20)
4	23	168.57-298.62 (223.96)	3.77-7.3 (5.60)	514.08-595.84 (544.04)	21.09-25.09 (23.21)	16.35-21.34 (18.59)	6.3-9.12 (7.10)
5	25	124.08-236.0 (197.09)	2.98-7.71 (5.76)	479.36-680.96 (591.73)	12.5-21.1 (16.39)	10.29-20.55 (14.08)	5.83-7.02 (6.27)
6	26	144.49-284.17 (214.33)	3.81-7.45 (5.63)	544.32-750.4 (647.36)	30.7-31.0 (30.85)	16.14-22.34 (19.24)	6.71-7.73 (7.22)
7	28	110.77-260.09 (156.78)	6.29-7.38 (6.95)	483.61-837.76 (637.90)	16.5-26.9 (22.25)	7.5-23.68 (13.76)	6.48-10.09 (8.33)
8	30	260.09-279.35 (274.53)	3.51-7.09 (5.85)	413.72-823.2 (613.31)	16.1-30.1 (23.37)	8.7-16.0 (11.22)	5.34-10.18 (6.77)
9	21	158.94-207.11 (178.20)	3.25-4.23 (3.63)	560.0-753.76 (660.09)	15.1-25.3 (19.9)	8.7-21.5 (14.90)	6.4-7.7 (7.07)
10	22SB	144.49-231.19 (199.39)	2.97-6.73 (5.15)	432.32-713.44 (573.47)	15.1-34.5 (26.36)	12.3-24.3 (18.20)	6.36-10.29 (7.74)
11	23SB	38.53-327.52 (211.25)	2.76-9.11 (5.64)	450.5-711.2 (541.12)	11.9-44.7 (23.28)	15.3-18.3 (16.98)	5.51-9.9 (7.25)
12	24SB	158.94-236.0 (205.90)	5.17-6.83 (6.22)	461.44-635.04 (549.64)	18.2-34.3 (26.37)	11.9-22.5 (17.45)	5.68-9.56 (7.31)
13	24	86.69-274.54 (169.28)	5.12-8.02 (6.98)	452.48-826.56 (601.62)	24.4-32.2 (28.73)	18.4-25.4 (21.43)	4.51-9.95 (6.34)
14	27SB	96.33-308.25 (200.36)	4.51-7.78 (6.01)	483.61-750.4 (607.21)	18.7-39.5 (28.88)	12.2-25.9 (20.24)	5.98-9.33 (7.57)
15	25/26 SB	62.61-317.88 (214.32)	2.55-7.97 (4.86)	481.6-747.04 (610.82)	29.1-39.0 (34.17)	11.2-28.5 (18.75)	5.96-9.96 (8.14)
16	8	144.49-298.62 (216.74)	2.78-4.3 (3.44)	514.08-750.4 (620.10)	23.6-36.8 (30.76)	18.5-24.0 (21.30)	9.54-9.84 (9.69)
17	9	86.69-298.62 (209.99)	2.38-10.97 (5.30)	544.32-826.56 (725.53)	24.7-56.1 (38.98)	14.4-35.9 (24.20)	6.56-9.08 (7.56)
18	10	183.02-248.21 (212.27)	2.78-4.28 (3.84)	595.84-762.72 (686.56)	19.2-36.3 (28.15)	11.2-21.1 (16.55)	5.97-7.14 (6.69)

19	20	62.61-255.27 (149.30)	2.95-6.12 (3.93)	502.88-731.36 (617.40)	27.5-34.1 (31.75)	16.0-34.8 (21.95)	6.77-9.62 (7.99)
20	16	110.77-274.54 (208.31)	4.15-5.58 (5.04)	655.2-819.84 (762.44)	24.8-34.9 (28.70)	12.1-20.0 (15.90)	5.04-6.9 (6.28)
21	37	158.94-351.6 (239.61)	3.18-6.66 (5.05)	617.12-879.2 (748.44)	16.5-34.5 (26.30)	9.4-19.7 (16.35)	5.86-6.86 (6.33)
22	17	77.06-211.92 (138.71)	4.12-7.23 (5.35)	404.32-575.2 (492.70)	15.1-30.3 (22.12)	8.7-16.6 (12.20)	5.75-7.9 (7.16)
23	18	110.77-255.27 (167.60)	5.9-10.48 (7.41)	395.36-578.56 (462.52)	20.2-36.8 (29.78)	11.6-21 (16.66)	6.67-9.64 (7.62)
24	19	227.52-255.27 (241.39)	3.82-5.32 (4.57)	445.76-449.12 (447.44)	23.0-28.5 (25.75)	14.9-18.5 (16.70)	8.3-9.09 (8.69)

Table No 3. Micronutrients (mg/kg) Status of Soils of central farm - B - block of MKV, Parbhani.

SR.N O	Blok No	Fe (mg kg ⁻¹)	Mn (mg kg ⁻¹)	Zn (mg kg ⁻¹)	Cu (mg kg ⁻¹)	B (mg kg ⁻¹)
1	29	6.48-7.22 (6.88)	14.8-16.38 (15.58)	0.46-0.96 (0.64)	2.3-2.80 (2.56)	0.43-0.58 (0.48)
2	27	5.6-6.46 (6.03)	15.14-15.88 (15.51)	0.65-0.69 (0.67)	2.44-2.50 (2.47)	0.16-0.39 (0.27)
3	22	7.12-7.46 (7.36)	14.98-17.42 (16.7)	0.55-0.95 (0.72)	2.66-2.82 (2.72)	0.23-0.45 (0.34)
4	23	5.3-6.64 (5.86)	15.28-17.30 (16.6)	0.44-0.62 (0.52)	2.38-2.5 (2.44)	0.5-0.59 (0.52)
5	25	6.94-7.12 (7.00)	15.18-15.96 (15.56)	0.43-0.67 (0.56)	2.54-3.16 (2.80)	0.49-0.67 (0.59)
6	26	5.96-7.38 (6.67)	14.0-15.60 (14.80)	0.32-0.52 (0.42)	2.9-3.30 (3.10)	0.51-0.51 (0.51)
7	28	5.38-5.70 (5.58)	14.9-17.14 (15.74)	0.33-0.96 (0.56)	2.24-2.8 (2.53)	0.27-0.62 (0.48)
8	30	4.9-7.78 (6.44)	17.18-17.50 (17.29)	0.38-0.68 (0.56)	2.48-2.98 (2.82)	0.51-0.56 (0.52)
9	21	6.48-7.30 (7.02)	16.46-16.92 (16.68)	0.46-0.79 (0.59)	2.22-2.64 (2.45)	0.23-0.56 (0.39)
10	22SB	6.96-8.24 (7.36)	14.68-17.74 (16.37)	0.36-0.98 (0.59)	2.22-3.30 (2.84)	0.63-0.71 (0.66)
11	23SB	6.48-9.40 (7.54)	15.62-17.9 (16.79)	0.39-0.98 (0.56)	2.54-3.16 (2.83)	0.39-0.71 (0.56)
12	24SB	5.48-8.30 (7.39)	16.24-17.64 (16.73)	0.33-0.94 (0.54)	2.5-3.28 (2.75)	0.43-0.52 (0.47)
13	24	6.42-7.96 (6.95)	14.42-17.44 (15.59)	0.36-0.62 (0.50)	2.48-3.9 (2.99)	0.09-0.73 (0.47)
14	27SB	5.38-7.04 (6.58)	14.04-16.9 (15.66)	0.39-0.59 (0.48)	2.46-3.52 (2.84)	0.29-0.50 (0.39)
15	25/26S B	4.7-8.02 (6.40)	13.74-14.82 (14.30)	0.41-0.98 (0.58)	2.12-2.96 (2.42)	0.09-0.62 (0.47)
16	8	4.7-9.50 (7.63)	13.92-14.22 (14.04)	0.38-0.65 (0.53)	2.44-2.96 (2.65)	0.51-0.56 (0.54)
17	9	7.04-9.64 (8.48)	14.24-15.30 (14.68)	0.31-0.59 (0.48)	2.26-3.14 (2.84)	0.56-0.72 (0.61)
18	10	9.32-10.8 (10.03)	15.78-17.12 (16.61)	0.47-0.64 (0.54)	2.5-2.84 (2.66)	0.34-0.56 (0.44)
19	20	9.06-10.5 (9.70)	14.52-17.50 (16.16)	0.41-0.56 (0.51)	2.5-3.08 (2.73)	0.21-0.43 (0.28)
20	16	7.62-10.3 (8.66)	14.48-15.96 (15.22)	0.45-0.98 (0.69)	2.52-2.88 (2.66)	0.15-0.59 (0.34)

21	37	8.02-9.12 (8.48)	14.9-15.78 (15.28)	0.66-0.71 (0.68)	2.5-2.70 (2.58)	0.22-0.51 (0.37)
22	17	7.12-10.3 (8.59)	14.48-16.70 (15.42)	0.43-0.74 (0.54)	2.48-3.08 (2.70)	0.43-0.76 (0.55)
23	18	4.96-6.50 (5.76)	13.92-16.70 (14.72)	0.47-0.76 (0.60)	2.2-3.10 (2.57)	0.09-0.69 (0.41)
24	19	5.78-5.96 (5.87)	14.02-14.08 (14.05)	0.64-0.82 (0.73)	3.12-3.50 (3.31)	0.08-0.45 (0.26)

(Figures in parenthesis indicates average value)

The results of study presented in Table 1 indicated that all the soil samples of Central Farm - B - Block of MKV, Parbhani. The available N was found low to medium (38.53 to 351.60 kg ha⁻¹) in soils of Central Farm - B - Block of MKV, Parbhani. It may be due difference in organic matter content of soil (Malewar *et al.* 1998). The soils of Central Farm - B - Block of MKV, Parbhani were found low to medium in available P content. The variation in the availability of phosphorus might be due to variation in CaCO₃ content in the soil, different soil properties and agronomic practices. The similar results were also reported by Bharambe *et al.* (1999). In case of available K the soils of Central Farm - B - Block of MKV, Parbhani were found sufficiently supplied with available K. This may be due to occurrence of potash rich minerals like mica and feldspar the available K was high Malewar (1995).

In case of secondary nutrients, the exchangeable Ca content in the soils of Central Farm - B - Block of MKV, Parbhani (11.90 to 56.10 Cmol(p⁺) kg⁻¹) were found sufficient. While the exchangeable Mg was also found in sufficient amount in Central Farm - B - Block of MKV, Parbhani (7.5 to 35.90 Cmol(p⁺) kg⁻¹). The available S was found low to medium in soils of Central Farm - B - Block of MKV, Parbhani (4.51 to 10.68 mg kg⁻¹). This could be attributed due to high amount of clay content in soils which can adsorbed varying amounts of S. This might be expected due to presence of Fe and Al oxides in surface soils Singh *et al.* (2006).

The DTPA-Extractable micronutrients Cu (2.12-3.90 mg kg⁻¹) the similar results were also reported by Malewar and Randhawa (1977). Fe (4.70-10.86 mg kg⁻¹) Similar results were reported by Dhage *et al.* (2000). Mn (13.74-17.90 mg kg⁻¹) the similar observations were also reported by Hundal *et al.* (2006). B (0.08- 0.76 mg kg⁻¹) were found sufficient and Zn (0.31-0.98 mg kg⁻¹) was found deficient in soils of Central Farm - B - Block of MKV, Parbhani. Similar results were reported by Meena *et al.* (2006).

IV. SOIL NUTRIENT INDEX VALUE

As per the NIV developed by the Ramamoorthy and Bajaj (1969) the nutrient index value for (Table 4) soils of Central Farm - B - Block of MKV, Parbhani represents the value worked out from nutrient index for Nitrogen, Phosphorous, Sulphur and Zinc are 1.27, 1.03, 1.05 and 1.32 respectively, against the nutrient index value < 1.67 for low, 1.67 to 2.33 for medium and > 2.33 for high fertility status of area. The “High Fertility Status” for Potassium, Calcium, Magnesium, Iron, Manganese, Copper and Boron were noticed 3.00, 3.00, 3.00, 3.00, 3.00, 3.00 and 2.58 respectively.

Table No: 4 Nutrient Index Value Central Farm - B - Block of MKV, Parbhani

Sr. No.	Available Nutrients	Central Farm - B - Block of MKV, Parbhani	
		NIV	Category
1	Nitrogen	1.27	Low
2	Phosphorus	1.03	Low
3	Potassium	3.00	High
4	Sulphur	1.05	Low
5	Calcium	3.00	High
6	Magnesium	3.00	High
7	Iron	3.00	High
8	Zinc	1.32	Low
9	Manganese	3.00	High
10	Copper	3.00	High
11	Boron	2.58	High

V. CORRALTION STUDIES

The correlations between available nutrients and physico-chemical properties (Table 5) of soils of farms showed that the organic carbon content of soil was significantly positive with soil available N (0.94**) and K (0.30*) the similar results were also reported by Kanthaliya and Bhatt (1991). S (0.13*) Similar results were observed to Mahaptra and Sahu (1996). Fe (0.22*) Similar results were observed to (Ram *et al.*, 1999). And Zn (0.16*) the same results were reported by Meena *et al.* (2006). The correlations between available nutrients and physico-chemical properties of soils of Central Farm - B - Block of MKV, Parbhani showed that the available S was negatively significant with EC (-0.93*) which clearly matches with the findings of Mahaptra and Sahu (1996), while the exchangeable Ca showed positive significant relation with (0.20*) EC and CaCO₃ (0.31**) This result was confirmatory with results obtained by Lande *et al.* (1977). The negative significant correlation was showed between available Mn and pH (r = -0.34) The same results were reported by Mahesh Kumar *et al.* (2011).

Table No 5. Correlation between the physico-chemical properties and available nutrients in soils of Central Farm - B - Block of MKV, Parbhani.

Chemical properties	N	P	K	S	Ca	Mg	Fe	Mn	Zn	Cu	B
pH	0.02	0.01	0.12	-0.39	0.19	0.18	-0.11	-0.34*	-0.12	-0.15	0.03
EC	0.06	0.60	-0.02	-0.93*	0.20*	0.24	0.26	-0.05	0.09	-0.01	-0.02
O.C	0.94**	0.06	0.30*	0.13*	0.03	0.02	0.22*	0.08	0.16*	0.05	0.01
CaCO ₃	0.09	0.01	0.28	-0.09	0.31**	-0.14	-0.08	-0.01	0.18	-0.16	-0.10

* Significant at 5% level

** Significant at 1% level

VI. SOIL SITE SUITABILITY

The data on soil site characterization of the four blocks that are representing the -B- block are given in Table 6. On the basis of the observed soil properties and the criteria given by NBSS and LUP (1994).

Table No 6 Soil site characteristics on soils of central farm - B - block farm of MKV, Parbhani.

Soil site characteristics	Block1	Block2	Block3	Block4
Slope %	1-3	1-3	1-3	1-3
Drainage	Moderate to well drained	Moderate to well drained	Moderate to well drained and slow permeability	Moderate to well drained and slow permeability
Soil characteristics				
Texture	Cl	Cl	Cl	Cl
Depth (cm)	51	35	25	25
Soil fertility				
CaCO ₃ (g kg ⁻¹)	68.30	50.60	63.00	56.50
Organic carbon (g kg ⁻¹)	5.9	4.7	4.8	8.2
pH	7.8	7.8	7.7	7.7
EC (dSm ⁻¹)	0.36	0.27	0.48	0.31

On the basis of the analyzed soil properties and the criteria given by NBSS and LUP (1994), the suitability of various crops was determined. The soil site suitability characteristics of soils of Central Farm - B - Block of MKV, Parbhani showed that cultivation of *kharif* cotton, soybean, pigeon pea and in *rabi* gram and safflower along with wheat under rainfed situation as well as irrigated condition.

VII. SUMMARY AND CONCLUSION

Summarizing the results, it can be concluded that the soils of - B - block were neutral to alkaline in soil reaction, safe in electrical conductivity, low to high in organic carbon content and non-calcareous to calcareous in nature.

According to the concept of “soil nutrient index” in general the status of available nitrogen, phosphorus, sulphur and zinc were “low”. While “high” in content of available potassium, calcium, magnesium, Iron, copper, manganese and Boron content in soils of B - block.

Land use plan for block B is cultivation of *kharif* cotton, soybean, pigeon pea and in *rabi* gram and safflower along with wheat under rainfed situation as well as irrigated condition.

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