INTRODUCTION

Agricultural development strategy for India in the 21st century must be through increasing productivity of the land under cultivation, with reduced costs of production and higher use efficiency of inputs with no harm to the environmental quality. The prime requisite is the promotion of health of the soil plant environment system to be free from economic exploitation under overuse and abuse of the inputs as if with impurity. To this end, a new strategy of promoting ecotechnologies, a blend of traditional practice and modern advances (as agro-ecosystems) replaces existing methods to eliminate its grave consequences. This is the agro-ecosystem management, a prudent design for economic viability of the farmer and ecological sustainability of crop yields.

Agriculture potential of a district primarily depends on nature and thickness of soil, terrain of land and amount and duration of rainfall. The mountainous terrain on the Western part of the district, the slopes at the base of the Sahyadrian ranges, the extensive plateau areas without a thick soil cover and lateritic soils have restricted the area under cultivation. Even the area that is cultivated suffers from infertile soil and deficiency of moisture as a large part of the Eastern portion of the district receives rainfall less than 500 mm. About 27% of the land in the district is under cultivation.

**Eastern Pune Agricultural Soil Information:**

Area under Forest land is 1,71,708 ha, Barren and uncultivable land – 1,04,226 ha, Land put to agricultural uses-62,938 ha, Cultivable wasteland- 32,918 ha, Permanent pasture and other grazing land-65,577 ha, Land under miscellaneous tree crop-3,483 ha etc. In the district, the area under cultivation during the *rabi* season is maximum for wheat i.e.71,793 ha. Other crops include Gram - 43,680 ha, Safflower - 19,428 ha and for Jowar -16,832 ha. During the *rabi* season, maximum land under cultivation is in Taluka Shirur, Daund and Baramati and Purandar i.e. 38,924 ha, 31,538 ha, 38,752 ha, 38,540 ha, and 28,540 ha respectively. During *kharif* season, maximum cultivation area is in Taluka Purandar (40,289ha) and Daund (35,638 ha). In the district, during *kharif* season, the major crops grown are Rice (61,674 ha), Sugarcane (47,631 ha) and Groundnut (47,799 ha) whereas area under Cotton is Low (376 ha).[31]

The total land brought under the horticulture in the district during the year 1990 to 2000 is 333.87 sq. km. Most of this area is located in Taluka Shirur (33.46 sq. km.), Daund (38.52 sq.
km.), Baramati (32.96 sq. km.) and Purandar (35.43 sq. km.). The predominant horticultural plantations carried out during this period include Mango (149.94 sq. km.), Chikku (33.92 sq. km.), Pomogranate (31.34 sq. km.) and Custard Apple (35.89 sq. km.). The other plantations include Cashewnut, Orange, Tamarind, Lemon, Bor etc.

The maximum floriculture cultivation is in Purandar Taluka (about 736 ha). Total area under floriculture in the district is about 2771 ha.[31]

1) Wastelands

Wastelands are the patches of land, which are not under productive use owing to some natural and external causes such as water logging, very high erosion, deposition of salts, very low or negligible soil cover, etc.

In Pune district, large portion of land, i.e. about 42.78% of the total area, is under wasteland category as per forest dept. Pune. Whereas actual waste land area based on MRSAC Landuse map show area of 38.32% in the district.[31]

2) Landuse

The Landuse Map gives an idea about the availability of land for industrial siting and the present use of that land. It tells about the environmentally sensitive areas viz. reserved forests, plantations, water bodies, wetlands, etc. About 82 percent of the districts in Maharashtra state have per capita income not only below the state average but also below the national average and it is in the districts Pune it is average.

Agriculture is the main activity. Agriculture thus, emerges as a key sector in the state. While the same is true for the country, there do exists differences in the performance of Maharashtra’s agricultural sector in comparison to that of India. Rapid growth in the agricultural sector, undoubtedly assumes importance, as the growth in this sector will in turn, stimulate growth in other sectors.[31]

Therefore, in this research an attempt has been made to study the agricultural soil qualities of some regions from eastern part of Pune Maharashtra.

Soil is comprised of minerals, soil organic matter (SOM), water, and air. The composition and proportion of these components greatly influence soil physical properties, including texture, structure, and porosity, the fraction of pore space in a soil.
Soil texture and the properties it influences, such as porosity, directly affects water and air movement in the soil with subsequent effects on plant water use and growth. A soil’s ability to provide plants with adequate water is based primarily on its texture. Soil pH refers to a soil’s acidity or alkalinity and is the measure of hydrogen ions in the soil.

The presence and concentration of salts in soil can have adverse effects on soil function and management. Salt-affected soils are most common in arid and semiarid regions where evaporation exceeds precipitation and dissolved salts are left behind to accumulate, or in areas where vegetation or irrigation changes have caused salts to leach and accumulate in low-lying places (saline seeps). Calcareous features can cause water infiltration and aeration to be restricted, and may inhibit seedling emergence and establishment. Crust conditions may be ameliorated with tillage and increased SOM content. Additionally, high concentrations of carbonates can be toxic to plants and soil organisms.

Soil biota, including flora (plants), fauna (animals) and microorganisms, perform functions that contribute to the soil’s development, structure and productivity. Therefore, the micro flora and micro fauna of the soil in selected area is also to be studied in the present research work.