

# Soil and Land Resources Evaluation for Major Crops of Chanvelly Village for Village Level Planning -A Methodological Approach

M Ram Prasad And V Govardhan

Department of Soil Science and Agricultural Chemistry, College of Agriculture,  
Rajendranagar, Hyderabad-

30

## ABSTRACT

In the present study eight representative pedons were selected based on topography from various physiographic units identified in Chanvelly village of Ranga Reddy district in Andhra Pradesh. The soils were shallow to very deep (30-110+ cm), reddish brown to very dark greyish brown (5 YR – 10YR), well to poorly drained, neutral to slightly saline (7.2 to 8.40), low to high in organic carbon (0.31 to 0.81 %), low to medium in CEC (12 – 45.1 c mol (p+) per kg, moderately to high base saturated and sandy loam to clayey with variation in relation to physiography. The surface soils were low to medium in available nitrogen (128.4 to 298.2 kg ha<sup>-1</sup>), low to medium in available phosphorous (9.1 to 28.6 kg ha<sup>-1</sup>), low to high in available potassium (108 to 291.3 kg ha<sup>-1</sup>), low to medium in available sulphur (5.0 to 15.0 mg per kg) and low to medium in available zinc (0.32 to 0.86 mg per kg). Based on morphological, physical, physico-chemical, chemical and meteorological data, according to revisions of US Soil Taxonomy revealed that pedon 1 of uplands and pedon 3 and 4 of midlands were classified as order Alfisols. Where as, pedon 2 of uplands classified as Entisol. The pedons 5 and 6 of midlands and pedons 7 and 8 of low lands classified in the order Inceptisols. Land capability classification was done based on the inherent soil characteristics, external land features and environmental factors. There are two land capability classes in the study area, viz., III and IV and four sub classes, viz., III<sub>sf</sub> and IV<sub>w</sub>, IV<sub>s</sub> and IV<sub>st</sub>. The physiographic units of study area matched with the suitability for important crops like paddy, chili, cabbage, tomato, cotton and redgram crops. Major soil constraints for crop production are slope, erosion, depth, texture, coarse fragments, drainage, organic carbon, soil reaction and calcium carbonate. Considering these constraints recommendations were suggested in the way to achieve sustainable yields and also to maintain the soil health without deterioration of future generations.

**Key words :** Land use Planning, Soil characterization, Soil classification, Soil taxonomy, Suitability evaluation