



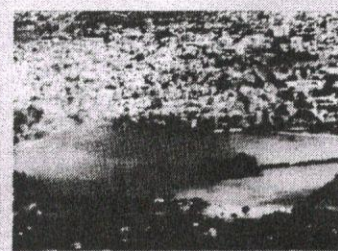
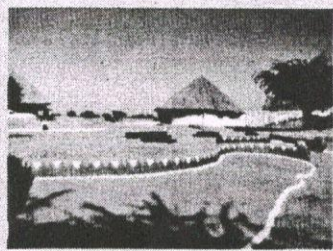
# National Symposium on RESOURCE UTILIZATION THROUGH INTEGRATED FARMING SYSTEM AND BIODIVERSITY CONSERVATION IN DRYLANDS

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# ABSTRACTS

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## C- 1

### Performance of Crops and Grasses under Varying Soil Depths in Arid Region of Gujarat

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The depth of soils has a large impact on growth and productivity of crops. Shallow soils in arid regions are a common occurrence due to presence of hard pan in the subsurface and such soils limit crop productivity. Soils of various depth ranges were identified at experimental farm of Central Arid Zone Research Institute, Regional Research Station, Kukma-Bhuj, Gujarat. The different depth range of soils included in this study were shallow soil (effective soil depth <15 cm), moderately deep soil (effective soil depth 15-25 cm), deep (effective soil depth 25-70 cm), and very deep (effective soil depth 70 to >1 m). These soils developed from calcareous and ferruginous sand stone and mud stone. A field experiment was carried out to study the performance of different crops and grasses under variable soil depths. Crops namely, clusterbean (*Marugar*), greengram (K 851), sesame (GT2), groundnut (GG2) and pearl millet (Pusa 23) and grasses *C. ciliaris* (CAZRI-75) and *L. indicus* (CAZRI 30-5) were grown in soils of four different depths viz. shallow soil (effective soil depth <15 cm), moderately deep soil (effective soil depth 15-25 cm), deep (effective soil depth 25-70 cm), and very deep (effective soil depth >70 cm). It was observed that shifting from very deep to medium – shallow soil resulted in reduction in grain/fodder yield of crops/grasses from 38.2 to 88.3%. The maximum reduction in grain yield was observed with clusterbean (61.8% of deep soil yield) and groundnut (61.4%) followed by pearl millet (55.2%), green gram (38.1%) and sesame (30.9%). In grasses the yield (fodder) level decrease was the least and ranged from 11.7 to 19.3% only.

## C- 2

### Mustard Yield Response to Deficit Irrigation and Soil Management Practices on Medium Textured Soils of Arid Environment

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Mustard [*Brassica juncea* (L.) Czern and Coss] is an important oil seed crop grown extensively in arid and semi-arid regions. Crops grown on medium to coarse textured soils are prone to water and nutrient stresses owing to low water retention, poor inherent fertility, and rapid development of mechanical impedance to root growth. These stresses can be alleviated by enlarging rooting volume in the soil and/or by regulating the supply of water and nutrients. Field investigation