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# EVALUATION OF SEABEET AND FODDERBEET FOR CULTIVATION ON SALT AFFECTED SOILS

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## ABSTRACT

*Growth of coastal halophyte Seabeet (Beta vulgaris ssp. maritima) and fodderbeet (Beta vulgaris ssp vulgaris. L. cv. Majoral) was compared under saline conditions. The Relative Growth Rate (RGR) of fodderbeet was greater than that of seabeet under non-saline conditions. Net Assimilation Rate (NAR) was not affected by increased salinity, however, the Leaf Area Ratio (LAR) of both ssp. decreased significantly with increasing salinity. Reduction in LAR may be explained by a significant reduction in Specific Leaf Area (SLA). Leaf thickness increased with increasing salinity. The Leaf Weight Ratio (LWR) did not change under saline conditions. Rate of photosynthesis and uptake of Na, K, Ca and Mg did not change under saline conditions.*

*Under saline sodic field conditions the cv. Majoral produced significantly higher biomass compared to that on non-saline soil. A significant improvement in the average leaf area was recorded. Protein content was also significantly increased. Addition of farm yard manure (FYM) significantly increased plant biomass. Protein content also increased significantly when FYM was added to the saline sodic soil. Fodderbeet, therefore, seems to be a potential crop for salt-affected lands.*

## INTRODUCTION

Salt affected arable land is increasing due to rise in water table from seepage in the canal irrigated area of Pakistan. A considerable area has been reported to be under moderate to high salinity (Muhammad, 1990). Conventional crops produced in these areas are facing a significant biomass germination but is known to be highly salt tolerant at vegetative growth stage. It produces more biomass than those of non conventional crops, however its growth in sodic soil reduces to a considerable extent (Anonymous, 1987). *Beta vulgaris spp.* Maritima, a biennial coastal halophyte, an ancestor of sugarbeet, fodderbeet, red beet and white beet, is naturally grown in coastal belts of many European countries. A comparative study of ssp. Maritima and domesticated cultivar Majoral grown under saline soil conditions could give an idea about its successful cultivation in Pakistan. Further testing of the same under saline sodic soil field conditions and comparing the production of conventional fodder crops and non conventional fodder crops is warranted.

## MATERIALS AND METHODS

Two field experiments at two different locations were carried out at D.I. Khan. Soil properties of the experimental fields are reported in Table-1. First experiment evaluated fodder crops. The second field experiment monitored the influence of farm yard manure on biomass production of fodderbeet under normal and saline sodic soil conditions.

**Field Study:**

*Trial 1:*