



## Analysis of Biomass and Primary Productivity Pattern of an Agroecosystem

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**Abstract:** Present paper deals with changes in biomass and net primary productivity of mixed winter crop (wheat and mustard) and weeds near 'Gujar Tal' (Jaunpur) at sloppy lake margins (50×200 m) distinguished into two ecological zones (upper and lower). In two zones maximum biomass of mixed crop (wheat and mustard) was at 120 days, whereas of weeds at 105 days of crop sowing. Zone-wise mixed crop had maximum biomass at the lower zone, i.e. near the lake water (wheat 1091.12g m<sup>-2</sup> and mustard 739.88g m<sup>-2</sup>), whereas the maximum biomass of different components of crops varied in the two distinct zones. Percentage contribution of crops and weeds in the total plant community biomass varied at different ages of crop plant. Productivity of mixed crop and dominant weed was observed to be maximum at 105 days (Wheat - *Triticum aestivum* Linn. 22.91g m<sup>-2</sup> day<sup>-1</sup>; mustard - *Brassica campestris* Linn. 19.23g m<sup>-2</sup> day<sup>-1</sup>; dominant weed *Cynodon dactylon* (Linn.) Pers. 4.44g m<sup>-2</sup> day<sup>-1</sup>), in contrast 'other weeds' or remaining weeds (1.06g m<sup>-2</sup> day<sup>-1</sup>) at 90 days. In this mixed crop the maximum grain yield of wheat was 3.18 ton ha<sup>-1</sup> and the average tiller density was 108.07 tillers m<sup>-2</sup>, whereas, the mustard yield was 0.50 ton ha<sup>-1</sup> with average plant density of 2.08 plants m<sup>-2</sup> both at maturity of the mixed crop at the age of 120 days of crop plant during per cropping season (from mid of November, 2008 to mid of March, 2009). Analysis of variance for standing total biomass of crop community has been done, where source of variation at different ages of crop plant was significant (p < 0.01) in both the zones, i.e. upper and lower.

**Keywords:** Agroecosystem, Biomass, Lake margin, Productivity