ABSTRACT

Key words: Fodder maize, residue management, fertilizer levels, growth, yield, quality.

A field experiment was carried out on medium black calcareous soils at Junagadh (Gujarat) during summer seasons of 2015 and 2016 to evaluate the effect of wheat residue management and fertilizer levels on fodder maize. There were fifteen treatment combinations comprising of five residue management practices (no residue incorporation (Manual harvesting), harvesting through combine harvester and burning the straw, harvesting through combine harvester and straw incorporation in soil, harvesting through combine harvester and straw incorporation in soil + 5 kg T. viride + 25 kg N ha\(^{-1}\) and harvesting through combine harvester and straw incorporation in soil + 5 kg madhyam + 25 kg N ha\(^{-1}\)) as a main plot treatment along with three fertilizer levels as a sub plot treatments viz., Control, 50% RDF and 100% RDF. The experiment was laid out in split plot design with three replications.

The result revealed that among residue management treatments, harvesting through combine harvester and straw incorporation in soil + 5 kg madhyam + 25 kg N ha\(^{-1}\) enhanced the growth parameters viz., plant height, no. of leaves plant\(^{-1}\), leaf area index, leaf chlorophyll content, stem diameter, no. of internodes plant\(^{-1}\), dry matter plant\(^{-1}\), crop growth rate, fodder yield, protein content and yield, soil moisture content, content and uptake of NPK and soil physical, chemical as well as biological properties over burning of crop residues.

The result indicated that application of 100% RDF significantly increased growth parameters viz., plant height, no. of leaves plant\(^{-1}\), leaf area index, leaf chlorophyll content, stem diameter, no. of internodes plant\(^{-1}\), dry matter plant\(^{-1}\), crop growth rate, fodder yield, protein content and yield, content and uptake of NPK, soil chemical and biological properties.

Economic analysis showed that higher net returns from fodder maize (var. African tall) can be obtained by harvesting through combine harvester and straw incorporation in soil + 5 kg madhyam + 25 kg N ha\(^{-1}\) and nutrient management through fertilizing with 100% RDF.