Research article

Evaluation of fodder cropping sequences under *Tarai* region of Uttarakhand

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Abstract

Field experiments were carried out to record the performance of twelve cropping sequences in randomized complete block design with three replications during 2015-16 and 2016-17 at Pantnagar. Different cropping sequences were assessed for fodder and nutrient yields, production and land use efficiency, profitability and soil organic carbon sequestration. Study revealed that hybrid Napier + berseem cropping sequence (CS_{12}) had higher green fodder (185.8%) and dry fodder (306.7%) yields than commonly practiced single cut sorghum + cowpea-oat + berseem-single cut sorghum + cowpea cropping sequence (CS_1). This also had significantly higher digestible dry matter (77.3 t ha^{-1}), crude protein (11.4 t ha^{-1}) and mineral (10.0 t ha^{-1}) yields than CS_1. Production efficiency with this treatment was 1.33 and 0.40 t ha^{-1} day^{-1} in terms of green and dry fodder yields, respectively against 0.53 and 0.11 t ha^{-1} day^{-1}, which was observed in CS_1. CS_{12} was the most profitable cropping sequence showing 285.6, 235.1 and 222.2% higher net return, B:C ratio and economic efficiency, respectively than commonly followed cropping sequence (CS_1). However, CS_{12} and CS_1 were at par with respect to soil organic carbon sequestration. So hybrid Napier + berseem cropping sequence (CS_{12}) could be recommended for Tarai region.

Keywords: Carbon sequestration, Cropping sequence, Fodder production, Fodder quality, Profitability