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Effects of Tillage System, Previous Crops and N-P Rate on Agronomic Parameters of Wheat at Shambo in Horro Highlands, Ethiopia

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Abstract

In the Horro highlands, wheat planting with conventional tillage and previous crops by application of N-P fertiliser is more common for smallholder farmers. In this area, the consequences of conventional and minimum tillage with different previous crops and rate of N-P fertiliser on wheat yields have not previously been tested. A trial was conducted to compare the effects of tillage system, previous crops and N-P fertiliser rate on wheat yield. Two-tillage systems (minimum and conventional tillage), three-previous crops (Niger seed, faba bean and barley) and two N-P rate (75 and 100 % of the recommended fertiliser rate) were tested with continuous wheat for both tillage systems in three replications. Tillage system, previous crops and N-P fertiliser rate significantly influenced wheat grain yields and straw biomass. Significant change of soil pH was observed due to combined use different factors compared to soil pH before treatment application. Minimum tillage gave better grain yield and straw biomass of wheat. Wheat following Niger seed gave better grain yield and straw biomass followed by faba bean and barley compared to continuous wheat. Higher grain yield and straw biomass of wheat were obtained from wheat produced on minimum tillage, following Niger seed and faba bean with recommended N-P fertiliser rate application. Niger seed and faba bean were the best precursor crops for wheat production in the region. Application of recommended rate of fertilisers following previous crop was necessary for wheat production. Thus integrated use ofthese factors have the potential to increase wheat grain yield in Horro highlands.

Keywords: Cropping sequence, fertiliser rate, tillage system

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