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## Control of Wild Oat in Wheat Fields Close to Hand Weeding Richard Warne\*

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## Introduction

Weeds are a major pest of wheat production Ethiopia. It accounts yield loss above 36.3% in wheat due to uncontrolled weed growth. Field experiment was conducted to evaluate the efficacy of herbicides and cultural practices *viz.*, palas, topic, palas+topic, hand weeding and weedy cheek were tested at Haqumura site in a Randomized Complete Block Design (RCBD) with four replications during 2018 and 2019. Except plant height all parameters like spike length, number of tiller per plant, biomass yield, number of seed per spike, 1000 seed weight and seed weight per plot were significantly affected by the treatments. Especially those yield and yield components that are treated with agro chemical called Pallas 45 OD showed significant difference in all cases except plant height that is not significantly difference in all treatments. So in nutshell application of pallas 45 OD according to company recommendation 30-35 days after weed emergence is the best agro chemical for the control of weed in wheat fields for our regions and other similar agro ecology especially for the control of wild oat in wheat fields next to hand weeding.

## Description

Ethiopia is the largest producer of wheat in the sub-Saharan Africa. The current total area suited to wheat production in the country is estimated to be over 1.6 million ha, with an average grain yield of 1.8 tons per hectare. Durum and bread are the two major wheat types produced in the country whose proportion in 1991 was about 60% and 40%, respectively. Durum and bread wheat are indigenous to Ethiopia and have been cultivated since prehistoric period in the highlands. Weed interference is one of the most important but less noticed factors, contributing towards lowering the yields of wheat. Weeds not only reduce the crop yield, deteriorate the quality of farm produce but also trim down the market value of wheat. Weed management increases the cost of production and thus it is necessary to device such methods which could reduce the cost of production as well as save time and labor.

This necessitates the need of studying the diversity of unknown weed species in the country at their existing agro ecology and farming system. Although these challenges are exited, efforts have been done in the past to alleviate the problems. Cultural, chemical and biological weed control activities can exert a strong selective influence on the weed populations. Thus, knowledge of the weed community structure is an important component of weed management and is essential in setting priorities for both weed management and research.

Therefore, this study is initiated to develop chemical evaluation of different types of herbicides for the control of weeds in wheat field in relation with cultural practices to boost up wheat production and productivity and to improve the livelihood of wheat dependent communities. Thus the study was mainly focuses on the herbicides evaluation for the control weeds in wheat fields. Based on the research done four treatments: Palas, topic, palas+topic, hand weeding and weedy cheek was applied on wheat weed trials among them best ones have been selected for the management of wheat weed at wheat growing areas of our region. Thus, statistical analysis using SAS system was run to select best agro chemicals for the control of wheat fields with reference to weedy cheek. From the experiment yield and yield components of wheat statistically same and significantly different was selected and recommended for the wheat

growing farmers of the region.

Based on above tables the influence of these chemicals (treatments) on the yield and yield components of wheat was not significantly different in the case of plant height but there is significant difference among spike length, number of tiller per plant, biomass yield, 1000 see weight, number of seed per spike and seed weight per plot. Especially those yield and yield components that are treated with agro chemical called pallas 45 OD showed significant difference in all cases except plant height that is not significantly difference in all treatments. Agro chemical called Pallas 45 OD showed significant difference when compared with other treatments so Pallas 45 OD is the best agro chemical for the control of weed in wheat fields of our regions especially for the control of wild oat in wheat fields next to hand weeding. The physical and chemical properties of the soil of the study area were conducted at the soil laboratory of Haramaya university main campus. The result of soil analysis in the laboratory was indicated that the soil texture of the experimental area was dominated by (sandy clay loam). The ratio of soil texture (proportion of sand, silt and clay, in the soil) of experimental field was 52%, 26% and 22% sand, silt and clay, respectively. The texture properties of the soil influence water holding capacity, water intake rates, aeration, root penetration and soil fertility.

The analysis of variance described that the main effect of varieties had highly significant (p<0.001) effect on grain yield of barley however NPS fertilizer application rates had significant effect (p<001) on grain yield. But the ineraction of NPS and Varieties were not significant effect on the grain yield. Increasing the rates of NPS fertilizers was increased the grain yields of barley. The maximum grain yield (4.592 t ha<sup>-1</sup>) was obtained from 200 NPS kg ha<sup>-1</sup> of fertilizer application. Oppositely, the minimum grain yield (2.625 t ha<sup>-1</sup>) was gained from unfertilized plot, The maximum grain yield at the highest NPS rate of fertilizer might have resulted from more profitable root growth and increased uptake of nutrients and better growth preferred over all others due to working together/collaborative effect of the three nutrients which enhanced yield components and yield of barley. This result was in line with the findings of that illuminate the effects of blended NPS fertilizer rates and row spacing on yield and yield components of barley at highlands of Ethiopia.

## Conclusion

The result of soil laboratory shows that the soil of the experimental area was texturally sandy clay loam with the pH 6.02 which was slightly acidic. The CEC of was 37 cmo (+) kg of soil which was high. The analysis revealed that the soil of the experimental site contains (0.914% OC, 1.58% OM and 0.14% N) which was low. Available P content of the soil was 8.2 mg kg<sup>-1</sup> which was high range. Main effect of both NPS fertilizer rate and varieties had highly significant effect (p<0.001) on phenological, plant height, total tiller per plant and above ground biomass and the main effect of NPS fertilizers rates had significant influence on number of seed/spike.