

Adopted Weed Control Practices in Menz Highland Area Wheat Crop Belts to Enhance Productivity in the Face of Changing Climate in Ethiopia

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Abstract

Crop production as a major source of income and food source is practiced so long in Ethiopia Menz area. However, in the modern agriculture there is difficulty of managing weeds invading crop lands with greater adaptation to chemicals. For this reason there is a significant loss of productivity in all crop cultivars. The Menz area farmers however have been struggling against weeds in their own knowledge that can foster environmental friendly and sustainable way. Even though, it seems labor intensive, farmers persist to work hard and refuse chemical application so far for its environmental effects. Some of these drastic weed management practices are dealt in this paper.

Keywords: *Crop Production; Weed Management; Menz Area Farmers; Indigenous Knowledge*

Introduction

Wheat crop is largely produced in Menz mid to high lands for long periods of time as a staple crop. The crop is major source of food items and contributes a lot for income generation besides home consumption. Even though, large areas are devoted for wheat production, its productivity is low. Production constraints attributed for this reason includes soil problem, limited access to technologies, weed problem, labor shortage, uneven rainfall distribution and seasonality problems. Among these constraints weed problems holds back wheat productivity through threatening in farming cost, labor drudgery, alteration of the farm ecology and adversely consume over soil resources.

Farmers of the wheat belts adopted various weed control mechanisms that are environmental friendly but more labor drudgery to reduce the effect of weed problem. Most of the times all or at least some mechanisms are integrated as per the farming situations and soil types. A farmer may prefer any method based on presence of labor, soil type, weeds type and previous cropping history. Successive cropping patterns do have a significant impact on promoting weed populations on current farming season. Different weed management practices will have different effect on the weed population to the next cropping season. In the areas legume crops are less managed for weed infestation while there is an intensive and inclusive weed management practice for teff production followed by wheat and barley.

Result and Discussion

Frequent tillage: Frequent tillage is commonly practiced for every cultivated crop in the area. Farmers of the area are intended to be engaged in tillage for any presence of moisture for a purpose of reducing weeds and saving moisture. Hence, there will be three to six tillage practices for wheat farm lands. The frequencies might be subjected to soil type, weed emergence and moisture availability. As long as there are emerged weeds, farmers will plough till the day the crop seeds will be sown. Frequent tillage therefore is believed to be efficient in controlling weed problems in the areas regardless of its negative effect on conservation agriculture.

Pre sowing plough: Pre sowing plough is another method of weed control. Farmers practice to plough farm lands after the emergence of weeds in the recent days of rainfalls. Waiting the weed propagules to be emerged on the farm lands, mixing the soil up and downs will kill majority of the emerged weed seedlings. The practice increases the working days of the farmers from 8 to 12 days for a hectare of land using an oxen drawn plough. Even though, the practice is labor intensive, farmers prefer to work early on farm lands before harder situation to which muddy soil holds back major activities.

Just at sowing plough: Just at sowing plough is usually practiced for all wheat belts for the purpose of killing emerged weeds, covering the wheat seeds by soil and to make good drainage. There is also possibility of removing uprooted weeds from the lands in this time with additional labor requirement. There will be excess soil moisture at this time to suffocate survived weed seedlings and to ignite germination of the crop seeds in time.

Lebesosh: “Lebesosh” is a local terminology given to a practice of covering the plot by soil manually using human hand. It is usually practiced through covering the seeds and emerged weeds by the soil from the furrow on the raised bed. There is a left space for drainage purpose as a furrow for every seed bed. To take all the soil left on the furrows up on the beds to cover seeds for a protection purpose from bird pests and sundry is probably the toughest act of sowing. The complementary effects of this practice significantly reduce the weed problem by killing early emerged weed seedlings.

Hand weeding: Hand weeding is the most widely labor intensive weed management practice in the areas. It is the removal of weed seedlings from the soil by uprooting using hand and/or knife or sickle. The highest working days of the farmers is invested for hand weeding practice. For this reason the highest cost of production for most farm lands goes to hand weeding. There is a requirement of 60 to 80 labor heads for one time weeding for a wheat farm land per hectare to which the total cost will be summed up to 8,000.00 Ethiopian birr. There is also a need to practice hand weeding frequently up to three times. Even though, it is labor intensive practice, it is the most efficient and effective weed control mechanism without any adverse effect. The effect of hand weeding will be long lasting in reducing weed populations in successive cropping systems. This is because weeds seedling are uprooted and buried before flowering in order to stop weed propagates reproduction. It is one aspect of job opportunity in the farming community as self employees or daily laborers. The practice will have greater socio-economic implications seen and hidden to be investigated too.

Perennial and biennial weeds will be majorly controlled through hand hoeing and cutting. Such types of weeds persist in the soil due to deep roots hence difficult to be uprooted by hand. For this reason an aid of hoeing and cutting is advisable. There are traditional racks or sickles for hand hoeing and small axes, knives and sickles for cutting weeds from the soil or from the base.

Removing rouged/uprooted weeds out of the farm lands: It is seldom practiced in wheat farms for an intention of reducing the regeneration of uprooted weed seedlings. Weeds collected will be heaped for decomposition or some portion will be used in composting. Sometimes it will be exposed for sundry out of the farmland. The use of uprooted weeds as a palatable animal forage is a greater advantage from second to fourth weedings in the wheat crop belts. The weed species are grassy and broad leaved preferred by all animals.

Sheep/calf grazing: Sheep/calf grazing is another practice with a dual purpose of weed control and animal grazing. Selected ruminants are allowed to get in the wheat farm after booting in which animals will prefer to graze on weeds emerged after the final weeding. The desired crops get matured while the weeds will be at vegetative stage suitable for grazing. The drainage tills will allow the ruminants to walk inside easily without any physical damage on the crops. Weed population is high on the drainage tills than the ridges since uprooted weeds put on will regenerate in the favorable situations. Thus, allowing selected small ruminants majorly sheep in particular ewes and lambs and calves of less than one year age will benefit farmers in the mixed farming system as a supplementary animal feed and to reduce weed infestation. However, this practice requires a wise decision to identify complementarities of animals to crops. The practice is limited in its scope in large wheat farms in the areas.

- Rouging, digging,
- Mowing before and in cultivation
- Fallowing
- Crop rotation

Wheat farming is usually practiced chemical fertilizers intensive which favored weed vigorosity, new weeds emergence and invasive weeds. This led producers to hire more daily labors that increased production cost. For this reason farmers are aware of looking better weed management practice. Crop rotation is in top of their preference to reduce weed population. Wheat is majorly rotated with teff and legume crops in the area for the sake of weed control for these crops require different farm management activities and growth requirements

The aforementioned weed control practices are adopted in Menz highlands for wheat production. Even though, the practices are pertinent for weed management, there should be a scientific investigation for combination of effective practices. Management practices effective, efficient and less labor drudgery should be identified to be recommended for the areas. This short notice reveals integrated local practices from the indigenous farming knowledge of the community. Hence, further investigations for best combinations in yield maximization, sustainable production, economic benefit and environmental safety will pertain to be researched for the scientific community.

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