

Research Paper. 1

Effect of post-emergence herbicides to Control Broad-leaved Weeds in Wheat under Rainfed Conditions

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Abstract

Weeds have an essential economic impact on crops. By competing for resources such as nutrients, water and light, wheat yield decreased approximately ten percent each year. Deprived of weed control, crop yields can be expressively a bridged. Commonly shown that weeds show slow harvest and increase combine repair costs. Some herbicides afford excellent control on broadleaf weed with small or no damage of wheat. Injury varies with variety, growth stage and herbicide. Until on the basis of sensitivity of herbicide there is no any type of research has been conducted on many of the varieties planted. Exclusively this review inspects the field problems of weeds from the chemical point of view. Buctril Super 60EC, Lihua, Ally max and Wheat Star have been studied in populations of herbicide selection and have therefore been selected as vital for this review. A lot of herbicides suggested to control of broadleaf weeds in wheat are Affinity Broad Spec (tribenuron + thifen sulfuron), Buctril super 60 % EC, Logoran Extra, StaraneM, Agility SG (metsulfuron dicamba + tribenuron + thifensulfuron), Ally XP (metsulfuron), 2,4-D, Banvel (dicamba), Bristle 69 EW, Amber (triasulfuron), Curtail (2,4-D + clopyralid), Harmony Puma super 69EW, Topik 15WP, Safener15WP, Certain 80WD and Tremor 24EC. On the basis of exceptional control of broadleaf weeds estimated bromoxynil, pyrasulfotoleis & another tool to control ALS-inhibitor resistant weeds. Current studies were started to find out the most effective and economical herbicide and their rates to control broad leaved weeds in wheat.

Keywords: Broad-leaved weeds, Post-Emergence Herbicides, Rainfed.

Research Paper. 2

Pursuit of stripe rust resistance and association of yield contributing traits in elite bread wheat yield trial

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Key words: Wheat (*Triticum aestivum* L.), Stripe rust resistance, *Puccinia striiformis*

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Abstract	

Among the foliar diseases stripe rust caused by *Puccinia striiformis* f. sp. *tritici*, is a severe threat to wheat crop. In the history its epidemics have caused severe wheat yield losses in Pakistan. This study was thus anticipated to evaluate genetic diversity for stripe rust resistance and association of yield contributing traits in wheat germplasm to mitigate the yield damages. Data on morphological traits was recorded on five randomly selected plants. Disease severity %age and the host reactions notes were taken three times in the field. Highest variance 61.256 found for coefficient of infection described different levels of host reaction against pathogen. Factor 1 with eigen value 2.015 highlighted the trend of variability in days to physiological maturity, spike length and thousand grain weight. Factor 2 (eigen value 1.478) depicted the extent of change in spikes per plant, grain yield and coefficient of infection for stripe rust and these two factors showed 58% of total variability. Cluster analysis described that cluster one exhibited medium mean value (11.66) of CI for yellow rust and high value (1.45) for grain yield. Results revealed high variability in traits of genotypes under study. Genotypes from cluster I and III can be selected and exploited for durable yellow rust resistance, higher grain yield and for early maturity respectively.

Research Paper. 3

Considerable effect of sowing dates and cultivars on the nutritional and functional properties of Mung Bean (*Vigna Radiata*)

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Key words: Mung bean, Sowing dates, Biological yield, Protein content

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Abstract	

Different sowing dates affect the growth and development of crop plants due to change in climatic conditions. The main objective of this study is to characterize mung bean cultivars for protein concentration and to determine high yielding mung bean genotypes with its ability of maximum protein synthesis under different sowing dates. A field experiment was conducted at the two locations in Pakistan one experimental area being the NARC (Islamabad) whereas the second experimental area was the Koont farm (Chakwal). The experiment was laid out in RCBD factorial design with three replications. Sowing dates on the main plot and cultivars on the sub plots, three sowing dates viz., 28 June, 8 July and 16 July and three cultivars viz. AZRI-06, NM 06 and NM-11 were used in the experiment. Late sowing in July was produced maximum yields (851.56 kg ha⁻¹) and protein contents. AZRI-06 was produced maximum potential yield (911 kg ha⁻¹) in the prevailing arid conditions of both locations. It appears to be well adapted to the agro ecological conditions of both Islamabad and Chakwal. Moreover, the use of AZRI-06 is suggested in arid conditions where soils are loam and sandy loam with arid environmental conditions.

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Research Paper. 4

Biologically Minimized Weed Risk in Wheat Fields by Using Aqueous Extracts of Invasive Weed Parthenium (*Parthenium hysterophorus* L.)

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Abstract:

An understanding about occurrence of weed species and patterns of change in incidence is dynamic in emerging weed managing approaches and give directions to future study endeavours. To appraise this threat, we studied the weed risk in wheat fields by using

aqueous extracts of invasive weed *Parthenium* (*Parthenium hysterophorus* L.) in 2012-13. Aqueous extracts of different plant parts (root, shoot, leaf, fruit and entire plant) of *Parthenium* were applied for three times as pre-emergence, post emergence and pre + post emergence. No significant grain yield differences were noticed between leaf extract and whole plant extract. Maximum weed density reduction (85.50%), weed dry biomass reduction (77.21%), weed control efficiency (85.67%), plant height (91.44 cm), biological yield (13426 kg ha⁻¹) and grain yield (4437 kg ha⁻¹) were found where leaf extract was applied as pre emergence spray. Whole plant extract sprayed as twice i.e. once as pre emergence and secondly as post emergence also gave better results showing weed density reduction (79.93%), weed dry biomass reduction (73.77%), weed control efficiency (80.09%), biological yield (12253 kg ha⁻¹) and grain yield (4414 kg ha⁻¹). On other hand 11.08% decrease in grain yield occurred where fruit extract was applied as post emergence spray. Therefore for better wheat grain yield and reduced weed risk farmers can use leaf extract spray before weed emergence. Leaf extract can also be replaced as a pre emergent weedicide.

Research Paper. 5

Risk evaluation of chlorpyrifos plus Carfentrazone ethyl plus Tribenuron methyl on yield and yield components of wheat (*Triticum aestivum* L.) in comparison with other selective herbicides under rain-fed conditions of Pakistan

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Abstract

Four different herbicides each viz Ally max (metsulfuron methyl + tribenuron methyl), Lihua (chlorsulfuron), Wheat star (chlorpyrifos + Carfentrazone ethyl + Tribenuron methyl) and Buctril super 60% EC (Bromoxynil + MCPA) were applied at three doses. Results promised maximum crop growth rate, biological and grain yield were produced by wheat star at 370.5 g/ha as compared to all other herbicides applied. Based on the lowest wheat grain yield and biological yield obtained, Ally max at 34.58 kg/ha appeared somehow phytotoxic to crop plants and depressed wheat yield. So wheat star at 370.5 g/ha showed maximum weed

kill efficiency with no phytotoxicity has proved effective as post emergence herbicide. Hence wheat star at 370.5 g/ha can be used safely for better wheat yield in rainfed areas of Pakistan.