

A Note on Comparative Efficacy of New Herbicides for 'Kalyan Sona' Wheat*

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Weed control is of great necessity in the cultivation of irrigated as well as rainfed crops. Especially in wheat which is a closely spaced crop, inter-row cultivation by mechanical means is generally difficult, while hand weeding is laborious and expensive. Hoeing, on the other hand, is ineffective against weeds in the crop rows which are the keenest competitors of wheat. It may also harm surface feeding roots. The weeds compete with the crops for water, light and nutrients if proper measures are not taken.

Recently, in addition to 2,4-D several new weedicides are available in the market. The farmers of Gujarat have practically no idea regarding their superiority over the conventional weedicide 2,4-D. It was, therefore, very necessary to test available herbicides for control of weeds in 'Kalyan Sona' wheat which is a very important irrigated crop best suited to multiple cropping. This investigation was carried out on the mechanized commercial farm of the Gujarat Agricultural University at Junagadh Campus in winter season of 1971-72 on clay soil having a pH of 8.3. The test crop was 'Kalyan Sona' wheat. There were 12 treatments consisting of nine

different herbicides, two mechanical methods of weed control and an unweeded control laid out in a randomized block design with four replications. The cultivation practices for the crop were adopted as per recommendations of the Department of Agriculture, Gujarat State. The doses of different herbicides were based on the recommendations of concerned manufacturers. TOK E-25, Eptam, Machete and Lasso were applied as pre-emergence on Nov. 13, '71 (one day after sowing wheat). The rest of the weedicides were applied as post-emergence on Dec. 16, '71. An area of 90 cm x 90 cm was demarked at two random spots in each plot for weed counts and other observations.

It was observed that two hand weeding at 4 and 6 weeks after sowing recorded the highest grain yield of 40.82 q/ha closely followed by TOK E-25 having grain yield of 40.59 q/ha. However, these treatments did not significantly differ from other herbicides such as Agroxone, 2,4-D, MCPA and Fernoxone. The lowest grain yield of 9.0 q/ha was recorded under Eptam followed by unweeded control which yielded 26.38 q/ha of grains. The herbicides viz., Eptam, Machete and Lasso were comparatively less effective due to their phytotoxic effects on germination as well as adverse effect on yield attributes such as productive shoots, grain number/spike and test weight.

The treatment of two hand weeding at 4 and 6 weeks was significant-

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ly superior to one hand hoeing at 4 weeks after sowing+one hand hoeing at 6 weeks in respect of grain yield. Thus hand hoeing was less effective against weeds because, it could not control weeds growing within the crop rows. This may also harm the surface feeding roots resulting in yield reduction.

The maximum protein percentage in grain was recorded under 2,4-D (14.44%), while it was the lowest under the unweeded control (11.55%).

It was also noticed that TOK E-25 and two hand weedings at 4 and 6

weeks gave equal maximum net profit of Rs. 1985 and Rs. 1984/ha, respectively. Unweeded control proved to be the poorest showing net realization of Rs. 704/ha, while Eptam recorded a loss of Rs. 1279/ha.

The above results clearly indicated the possibility of stepping up wheat production suppressed by weeds by carrying out hand weeding at 4 and 6 weeks after sowing. The new herbicide TOK E-25 can also be used in place of conventional weedicides like 2, 4-D, MCPA, Agroxone and Fernoxone when there is a shortage of labour or the wages are high.