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CHEMICAL WEED CONTROL IN RICE UNDER SEMI DRY CONDITIONS

Rice is the most important food crop of Kerala occupying an area of 8.02 lakh hectares. Out of this 3.98 lakh hectares are cultivated during the first crop season and more than 80 per cent of the area in this season is under semi dry system of cultivation. Heavy infestation of weeds is a serious problem confronting the rice growers during this crop season. There is very little information regarding the use of herbicides in controlling weeds under semi dry system of cultivation in Kerala. This investigation was therefore undertaken to compare the relative efficiency of the pre-emergence herbicide Eptam and the post emergence herbicide Stam F-34 and MCPA either alone or in combination with hand weeding at the Agriculture College, Vellayani during the year 1968-69.

Application of Stam F-34 @ 2 Kg a. i. per hectare 30 d. a. s., MCPA @ 1 Kg a. i. per hectare 30 d. a. s., Stam F-34 @ 2 Kg a. i. per ha: 30 d. a. s. and hand weeding 45 d. a. s., MCPA @ 1 Kg a. i. 30 d. a. s. and hand weeding 45 d. a. s., combinations of MCPA and Stam F-34 (Half the dose each) 30 d. a. s., Eptam 6-E @ 4.55 litre/ha 3 d. b. s. were the treatments tried along with hand weeded (30 d. a. s. and 40 d. a. s.) and unweeded controls. The soil of the experimental plot was sandy clay loam of moderate fertility. The lay out was randomised block design with three replications with a net plot size of 32.9 sq. metres. The (Var. Vellayani - 1) was fertilised with 30 Kg N., 30 Kg P₂O₅ and 30 Kg K₂O per ha in addition to 5 tonnes farm yard manure per hectare. Dry weight of weeds per square metre, yield of paddy grain and straw were used as criteria for treatment evaluation.

Grasses like *Echinochloa colonum*, *Cynodon dactylon*, dicot weeds like *Phyllanthus niruri*, *Ipomea aquatica* and *Cyperaceous* weeds were widely prevalent in the paddy fields of Vellayani. The observation on mean dry weight of weeds and percentage of weed control are presented in table 1. It can be seen that hand weeding twice, pre emergence application of Eptam and Stam F-34 in combination with hand weeding are statistically on par in controlling weeds, but they are significantly superior to the rest of the treatments. This is in agreement with the findings of Forster (1964) and Naidu *et al.* (1964). Stam F-34 singly and MCPA in combination with hand weeding are on par but are superior to MCPA alone. Combined application of MCPA and Stam F-34 is inferior to all other weed control treatments, in controlling weeds. These

facts show the superiority of **Stam F—34** over MCPA and the effectiveness of **Stam F—34** plus hand weeding in giving good control of weeds. Superiority of **Stam F—34** over MCPA observed in this experiment is in conformity with the findings of Manna and Choudhari (1966), Verma Mani (1967) and Sahu and Jena (1968).

Table 1 Mean dry weight of weeds, percentage of weed control, Grain yield and Straw yield

Treatments	Dry wt. in Kg/ha	Percentage of weed control	Grain yield Kg/ha	Percentage increase over control	Straw yield Kg/ha	Percentage increase over control
Unweeded control	994	—	1726	—	2328	—
Hand weeding twice	82	9	2735	60	3289	41
Stam F—34 on 31st day	130	86	2480	46	3103	33
MCPA on 31st day	173	82	2310	35	2924	25
Stam F—34 + Hand weeding	85	91	2650	55	2143	34
MCPA + Hand weeding	146	85	2346	37	2894	24
Stam F—34 + MCPA (half dose each)	724	27	1763	3	2365	1
Eptam—Preemergent	45	95	—	—	—	—
C. D. at 5%	66		67		108	

The mean yields of paddy grain and straw are furnished in Table 1. All the weed control treatments except the combined application of **Stam F—34** and MCPA gave significantly higher yield over unweeded control. From a perusal of the data on weed control percentage, it can be seen that hand weeding is the most efficient treatment other than EPTC and hence leads to maximum grain yield. This is in agreement with the findings recorded at International Rice Research Institute (Anon. 1967). **Stam F—34** in combination with one hand weeding is second in order of merit and is significantly superior to the rest of the treatments. This may be due to the combined effect of **Stam F—34** and hand weeding both of which individually have already been reported as effective weed control measures. (Nair *et al.* 1964 and Sajo, 1965).

From the grain yield data it can also be seen that **Stam F—34** is superior to MCPA and MCPA plus hand weeding. As has been reported by previous investigators like Verma and Mani (1967) **Stam F—34** has been

proved best for controlling weeds especially grasses, in a paddy field when compared to MCPA which was reported to be effective mainly for controlling sedges and dicots.

From Table No. 1, it is also seen that the straw yield is maximum in plots receiving hand weeding twice as in the case of grain yield. **Stam F—34** in combination with hand weeding and **Stam F—34** alone gave the next highest straw yield which are on par. This increased straw yield has been resulted due to the weed control effects of these treatments and consequent reduction in competition for space, nutrients and particularly moisture, especially in a dry sown crop like this. This is also supported by decreased straw yield in the unweeded control.

സംഗ്രഹം

വിരിപ്പു കൃഷിക്ക് വിത്തു നരിയിടുന്ന നെൽപ്പാടങ്ങളിൽ മൂന്നു കളനശീകരണ രാസവസ്തുക്കളുടെ കഴിവു താരതമ്യപ്പെടുത്തുന്നതിനായി, വെള്ളായണി കാർഷികകോളേജിൽ ഒരു പരീക്ഷണം നടത്തി. അതിൽ നിന്നും സുറാം എഫ്. 34, ഹെക്ടറിൽ 2 കിലോഗ്രാം എന്ന തോതിൽ വിത്തിട്ട് 31-ാം ദിവസം തളിക്കുന്നത്, രണ്ടു പ്രാവശ്യം കള പരിക്കുന്നതിനോടൊപ്പം മെച്ചമല്ലെങ്കിലും കളകളെ നിയന്ത്രിക്കുവാൻ പര്യാപ്തമാണെന്ന് മനസ്സിലാക്കാൻ സാധിച്ചു.

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