SHORT COMMUNICATION

STUDY OF WEED SPECIES AND ITS GROWTH ON DIFFERENT STAGES OF PADDY UNDER TRANSPLANTING AND SRI METHODS

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Abstract: The present investigation was carried out during kharif 2006-07 at instructional farm of indira Gandhi Krishi Vishwavidalaya,Raipur .The experiment was conducted in split plot design in field and CRD in laboratory condition replication in twice. It was observed that the rice genotypes Dubraj ,indira sugandhit dhan and R- 1182-167-2-157 -1 possessed minimum weed densities of major weed species (*cyperus rotundus, Borreria hispida ,Echinochoa colona* **,***Croton banplandianum, ischaemum rugosum* **,***Eclipta alba***)** in both transplanted and SRI method ,while R-548-89-6 and safri -17 and Danteshwari possessed more weeds. The number of leaves were maximum in *Eclipta alba* followed by *Borreria hispida,* **,***Croton banplandianum, ischaemum rugosum* **,** *Echinochoa colona* and *cyperus rotundus* in both transplanted and SRI condition.The number of leaves in all the weed species was slightly higher in SRI method as compared to transplanting .

Keyword: Leaves, Plant height SRI, Transplanting

INTRODUCTION

Chhattisgarh state is regarded as the "Rice bowl" and about 82% population of the state is depending on agriculture for their livelihood. Weed management during a crop season has been a several problems for many years. Worldwide a 10 % loss of agriculture production can be attributed to the competitive effect of weed despite their intensive control potential yield reduction caused by un controlled weed growth out crop season have an estimated range of 45-95 % depending on ecological and climatic condition therefore the identification of rice genotypes exhibiting allelopathic/weed suppression potential against the weed growth may be an important tool to developed genetically allelopathic potential crop weed cause serious problem in cultivation of rice which affect the growth and development and yield of rice .

MATERIAL AND METHOD

The present investigation was conducted at the instructional farm, indira Gandhi krishi vishwavidalaya Raipur (C.G) during the kharif season 2007-2008.Raipur is situated in the central part of the Chhattisgarh and lies at 21.16N latitude and 81.26E longitude with an altitude of 28.56 meters above the mean sea level. the place of investigation comes under sub –humid to semi humid agro climatic region, the average rainfall of the region range from 1200-1400 mm , out of which 80-85 %rains are usually received from third week of June to end of September and very less during October to February . The maximum temperature goes to high as 46.C during the May and minimum as low as 6.C during December months. The experiment is spilit plot design 2 replication and 12 rice genotypes *i.e* (1) R-1037-649-1-1 (2) Danteshwari (3) R-979-1528-2-1 (4) Vasmati (5)R-1182-167-157-1 (6) R 1072-360-1 (7) indira sugandhit dhan (8)R 548-89-6 (9) Safri- 17 (10) Dubraj (11) R 1249-1196-2-1 (12) R1060-1674-1-1 plant height of weed and number of leaves per plant measured in centimeter and inches at 60 DAT ,80 DAT and at the time of physiological maturity of the crop.

RESULT AND DISCUSSION

The plant height of major weeds species was measured at 30, 60 DAT and at the time of physiological maturity of the crop. In general average maximum plant height was observed in *cyperus rotundus* at 30 DAT 60 DAT and at physiological maturity of crop in transplanting and SRI method and followed by *Borreria hispida* and *croton banplandianum* in almost all the stages of observation and experimental condition minimum plant height was observed in the weed spp.*Eclipta alba* and followed by *Ischaemum rugosum* and *Echinochloa colona at* 30,60 DAT and at physiological maturity of crop in transplanting and SRI method.

The maximum plant height of *cyperus rotundus* was observed in Indira sughandhit dhan (medium duration) at 30 DAT,60DAT and at physiological maturity in transplanted as well as SRI method and followed by R-1249-1196-2-1 (long duration) at 30 DAT,60DAT and at physiological maturity in transplanted condition ,while in SRI method it is followed by R-548-89-6 (medium duration) at 30 DAT,60DAT and at physiological maturity.

The minimum plant height of *cyperus rotundus* was observed in R-1182-167-2-157 at 30 DAT,60DAT and at physiological maturity of crop in transplanted and SRI method .However the plant height of *Borreria hispida* was maximum in rice genotype Danteshwari at 30,60,DAT and at physiological maturity situation in rice genotype Danteshwari followed by R-979-1528-2-1 and R-1072-360-1 where as minimum plant height was observed in vasumati followed by R-1060-1674-1-1 in

transplanted condition .while in SRI it was maximum e in R-1037-649-1-1 and minimum in at 30 DAT,60DAT and at physiological maturity Vasumati.

Croton banplandianum possessed *maximum plant height in* rice genotype R-1249-1196-2-1 and fallowed by Safri 17. Minimum plant height *croton banplandianum* was observed in 1037-649-1-1 followed by Indira sugandhit dhan in transplanted condition. In SRI it was maximum in Dubraj fallowed by Vasumati at physiological maturity the minimum plant height was observed in Dubraj and followed by Indira sugandhit Dhan. *Echinochoa colona* stand in fourth rank among the weed species present in rice field .The average plant height was observed in transplanted condition and in SRI method , Maximum plant height of *Echinochoa colona* was observed in R-548-89-6 and fallowed by R-1072-360-1 transplanted condition and in SRI the same genotype were possess similar trend in maximum and minimum .Minimum plant height was observed in R-1060-1674-1-1followed by R-1249-1196-2-1 in transplanted and SRI it was also minimum in R- 1060-1674-1-1.

Ischaemum rugosum was having average plant height in transplanted and in SRI condition .maximum plant height of weed species *ischaemum rugosum* was observed in transplanted and SRI and respectively in genotype R-1060-1674-1-1 where as minimum in R-1182-167-2-157-1 in both transplanted and SRI respectively .

Eclipta alba possessed average plant height in transplanted and SRI *i.e*. 32.80 and 35.68 respectively .The maximum plant height in *R-1072-360-1* transplanted and SRI respectively, where as minimum plant height in observed in R -1037-649-1-1 in transplanted and in R-979-1528-2-1 in SRI.

The number of leaves per plant on major weed species was also measured at 30, 60, DAT and at physiological maturity in transplanted and SRI condition .Number of leaves per plant was maximum at 60 DAT in almost all species of weeds in both the situation .no any specific trend or relation in number of leaves was observed in both the condition.

The numbers of leaves were maximum in *Eclipta alba* followed by *Borreria hispida, Croton banplandianum, Ischaemum rugosum* , *Echinochoa colona* ,and *Cyperus rotundus,* in both transplanting and SRI condition .The number of leaves in all the weed species was slightly higher in SRI method as compared to transplanting .In general the number of leaves on all the weed species were more in rice genotype R-1072-360-1 at almost all the stages of observation and both the situation *i,e* transplanting and SRI condition.

Table 1. Plant height of major weed species in different stages (DAT) under transplanting condition

S.N.	Rice genotype	Plant height of major weed species (cm)																	
		Cyperus rotundus			***Borreria hispida***			***Echinochoa colona***			***Croton banplandianum***			***Ischaemum rugosum***			**Eclipta alba**		
		30	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***
1	R-1037-649-1-1	30.8	41.3	60.2	24.2	33.5	47.8	16.7	20.5	36.3	18.1	26.4	38.5	16.4	21.6	35.4	16.5	22.2	26.7
2	Danteshwari	32.5	43.5	65.3	26.6	35.4	52.5	18.2	21.4	32.1	16.0	27.4	41.1	15.9	21.2	31.8	19.2	25.6	38.5
3	R-979-1528-2-1	31.5	40.1	60.6	23.5	31.8	50.3	19.6	24.2	30.8	15.4	25.6	39.6	17.7	23.6	32.4	13.3	17.8	31.1
4	Vasumati.	32.5	43.4	65.2	20.7	25.6	38.4	19.5	25.4	38.2	19.1	26.3	39.5	17.3	23.0	34.6	16.1	21.5	32.3
5	R-1182-167-2-157-1	29.5	38.8	58.3	24.5	33.0	49.6	17.5	23.7	35.6	18.3	28.1	42.2	14.9	19.86	29.8	14.1	18.8	28.2
6	*R-1072-360-1*	31.0	41.4	62.1	24.6	33.5	50.3	19.5	25.9	38.9	19.6	25.5	38.3	15.5	20.7	31.1	19.2	25.6	38.5
7	Indira sughandhit dhan	32.5	47.5	71.3	23.5	31.4	47.2	15.8	20.4	30.6	16.7	25.6	38.4	16.7	22.3	33.5	17.3	23.0	34.6
8	*R-548-89-6*	34.5	45.4	68.2	21.6	27.2	40.9	19.6	26.0	39.1	19.5	26.6	39.9	15.15	20.2	30.2	14.8	19.8	29.7
9	Safri 17	34.5	45.5	68.3	20.5	27.8	41.7	21.2	21.7	32.6	16.3	28.7	43.1	15.7	20.9	31.4	18.6	24.8	37.2
10	Dubraj	32.8	44.2	66.5	21.5	29.1	43.7	21.8	21.2	31.8	15.9	26.4	39.6	15.2	20.3	30.5	14.7	19.6	29.2
11	R-1249-1196-2-1	34.5	45.8	68.8	22.6	26.8	40.2	27.6	20.1	30.2	16.6	28.8	43.2	16.3	21.4	32.2	15.5	20.7	31.1
12	R1060-1674-1-1	31.3	42.6	63.9	19.6	25.7	38.6	18.3	18.8	28.3	14.15	28.5	42.8	21.6	28.1	42.2	17.1	22.8	34.3
	Total	**390.0**	**519.5**	**778.7**	**273.4**	**360.8**	**541.2**	**235.3**	**269.3**	**404.5**	**205.65**	**323.9**	**486.2**	**198.35**	**263.16**	**395.2**	**196.4**	**262.2**	**393.6**
	Avarage	**32.5**	**43.29**	**64.89**	**22.78**	**30.06**	**45.12**	**19.60**	**22.44**	**33.7**	**17.13**	**26.9**	**40.5**	**16.52**	**21.93**	**32.93**	**16.36**	**21.5**	**32.8**

Table 2. Plant height of major weed species in different stages (DAT) under SRI condition

S.N	Rice genotype	Plant height of major weed species (cm)																	
		Cyperus rotundus			***Borreria hispida***			***Echinochoa colona***			***Croton banplandianum***			***Ischaemum rugosum***			**Eclipta alba**		
		30	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***
1	R-1037-649-1-1	31.6	42.1	63.8	24.9	33.2	55.8	19.4	25.9	33.6	20.1	26.8	40.8	19.2	25.6	33.6	14.3	19.1	35.2
2	Danteshwari	33.1	45.6	68.4	27.3	36.4	54.6	17.1	22.8	34.3	21.7	29.1	43.5	18.6	24.8	37.3	20.2	27.1	40.5
3	R-979-1528-2-1	31.9	42.5	63.2	27.9	37.2	49.9	16.8	22.4	38.9	20.5	27.2	40.3	15.6	22.4	38.5	17.1	23.4	28.7
4	Vasumati.	33.7	44.93	67.4	20.4	27.2	40.9	16.4	21.9	32.9	23.7	30.8	46.2	18.2	24.2	36.4	19.2	24.0	36.1
5	R-1182-167-2-157-1	31.1	41.5	62.3	25.1	33.5	50.3	18.9	25.2	37.8	22.6	29.5	44.3	15.2	20.2	30.4	15.2	20.2	30.4
6	*R-1072-360-1*	32.1	42.8	64.3	26.3	35.0	52.6	20.2	27.2	40.5	20.6	27.8	40.5	18.9	25.2	37.8	20.1	26.8	40.3
7	Indira sughandhit dhan	37.1	49.46	74.2	25.6	34.2	51.3	17.3	23.0	34.3	21.2	26.8	40.3	18.3	24.1	36.2	19.8	25.9	38.9
8	*R-548-89-6*	35.6	47.53	71.3	22.4	29.8	44.8	21.2	28.2	42.4	22.3	28.3	42.5	19.4	25.9	38.9	18.2	21.8	32.7
9	Safri 17	35.1	46.8	70.2	22.6	30.2	45.3	17.9	23.8	35.8	22.5	30.2	45.3	17.3	23.0	34.6	19.6	25.6	38.5
10	Dubraj	33.9	45.2	67.8	23.4	31.2	46.8	16.9	22.5	33.8	24.6	32.2	48.3	19.6	26.1	39.2	16.7	22.2	33.4
11	R-1249-1196-2-1	35.1	43.8	70.2	21.4	28.53	42.8	18.6	24.4	36.6	21.1	26.8	40.2	16.8	23.5	33.6	17.3	22.4	34.6
12	R1060-1674-1-1	32.4	42.2	64.8	22.9	30.53	45.8	16.2	21.8	32.5	21.2	28.3	42.5	21.2	25.9	42.5	19.45	28.3	38.9
	Total	**402.7**	**534.42**	**807.9**	**290.2**	**386.96**	**580.9**	**216.9**	**289.1**	**433.8**	**261.8**	**343.8**	**514.7**	**218.1**	**290.9**	**439.0**	**217.15**	**286.8**	**428.2**
	Avarage	**3.5**	**44.535**	**67.32**	**24.18**	**32.24**	**48.40**	**18.075**	**24.09**	**36.15**	**21.81**	**28.65**	**42.89**	**18.17**	**24.24**	**36.58**	**18.09**	**23.9**	**35.68**

Table 3. No. of leaf / plant on major weed species in different stages (DAT) under transplanting condition

S.N.	Rice genotype	Number of weeds species 100 cm^2																	
		Cyperus rotundus			***Borreria hispida***			***Echinochoa colona***			***Croton banplandianum***			***Ischaemum rugosum***			**Eclipta alba**		
		30	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***
1	R-1037-649-1-1	15	13	15	23	20	22	12	14	15	12	14	16	19	18	18	18	28	28
2	Danteshwari	16	18	16	20	24	22	16	14	16	18	14	16	14	20	22	14	20	20
3	R-979-1528-2-1	12	15	18	18	22	20	12	18	20	13	20	22	17	16	20	26	16	18
4	Vasumati.	15	16	14	24	26	28	13	14	16	13	15	16	18	20	22	26	28	28
5	R-1182-167-2-157-1	13	14	15	19	20	20	14	16	16	20	22	22	18	20	20	25	26	26
6	*R-1072-360-1*	14	16	13	22	24	24	14	16	20	20	22	20	12	15	16	28	30	30
7	Indira sughandhit dhan	12	15	15	20	23	22	12	14	16	18	20	20	14	14	15	27	30	28
8	*R-548-89-6*	16	18	20	22	24	24	08	16	16	12	14	16	12	14	18	23	24	24
9	Safri 17	13	15	15	18	20	20	10	12	12	18	20	22	15	14	16	24	26	24
10	Dubraj	12	14	15	25	26	24	10	12	15	12	15	16	17	18	18	21	22	22
11	R-1249-1196-2-1	16	18	14	16	18	22	12	14	14	13	14	18	14	16	16	22	24	26
12	R1060-1674-1-1	11	14	10	21	22	20	12	12	16	20	22	22	18	16	16	24	24	26
	Total	**165**	**186**	**180**	**284**	**269**	**268**	**145**	**172**	**192**	**189**	**212**	**226**	**188**	**201**	**217**	**278**	**298**	**300**
	Avarage	**13.75**	**15.5**	**15**	**20.66**	**22.4**	**22.33**	**20.8**	**14.3**	**16**	**15.75**	**17.6**	**18.8**	**15.66**	**16.75**	**18.0**	**23.16**	**24.8**	**25**

Table 4. No. of leaf / plant on major weed species in different stages (DAT) under SRI condition

S.N.	Rice genotype	Number of weeds species 100 cm^2																	
		Cyperus rotundus			***Borreria hispida***			***Echinochoa colona***			***Croton banplandianum***			***Ischaemum rugosum***			**Eclipta alba**		
		30	***60***	***Maturity***	***30***	***60***	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***	***30***	***60***	***Maturity***	**30**	**60**	***Maturity***
1	R-1037-649-1-1	18	20	16	26	24	24	14	14	18	15	14	18	12	20	22	19	22	22

2	Danteshwari	17	20	18	25	20	20	18	18	22	20	16	20	16	18	22	16	18	18
3	R-979-1528-2-1	14	18	16	22	22	24	14	16	16	15	16	18	19	16	20	28	24	24
4	Vasumati.	18	20	15	28	20	26	14	14	14	18	16	18	24	20	24	26	26	28
5	R-1182-167-2-157-1	15	18	16	24	20	22	16	16	18	22	20	20	20	22	20	27	26	28
6	*R-1072-360-1*	16	18	14	26	22	22	18	18	22	24	22	22	15	16	18	29	30	26
7	Indira sughandhit dhan	14	16	18	22	24	20	16	14	18	20	22	20	16	14	18	28	28	28
8	*R-548-89-6*	18	20	20	25	23	23	12	16	18	15	16	18	14	16	16	29	24	24
9	Safri 17	16	18	16	20	27	24	12	14	18	22	20	20	18	16	18	22	28	26
10	Dubraj	14	18	16	28	20	28	15	14	14	18	16	22	19	18	18	26	24	28
11	R-1249-1196-2-1	20	22	15	20	22	24	14	12	18	16	16	18	20	18	16	28	26	24
12	R1060-1674-1-1	13	15	20	24	18	22	14	12	16	24	20	18	23	16	18	24	30	22
	Total	**193**	**223**	**200**	**290**	**262**	**279**	**177**	**178**	**212**	**229**	**214**	**232**	**216**	**210**	**230**	**302**	**306**	**298**
	Avarage	**16**	**18.58**	**16.6**	**24.16**	**21.83**	**23.25**	**14.75**	**14.83**	**17.66**	**19**	**17.83**	**19.33**	**18**	**17.5**	**19.16**	**25.16**	**25.5**	**24.83**

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