



RESEARCH NOTE

Effect of different weed control methods on summer gujari rice

R.R. SHEWALE

Department of Agronomy, Anand Agricultural University, ANAND (GUJARAT) INDIA

Abstract : The experiment was conducted during summer season of the year 2009-10 at Regional Research Station, Anand Agricultural University, Anand to assess the response of rice to establishment techniques and weed control methods. Results revealed that transplanting 10-12 days old seedling with spacing of 25×25 cm, 1 plant hill⁻¹ (System of Rice Intensification (SRI)) + 100:25:00 kg NPK, 25 kg ZnSO₄ ha⁻¹, 25 per cent N from FYM recorded best weed control than others. Pyrazosulfuron and use of rotary weeder also control the weeds. However, the hand weeding were efficient as compare to other.

Key Words : Weed control methods, Rice

View Point Article : Shewale, R.R. (2016). Effect of different weed control methods on summer gujari rice. *Internat. J. agric. Sci.*, **12** (1) : 143-145.

Article History : Received : 15.12.2015; Accepted : 28.12.2015

India is the world's second largest rice producer and consume next to China. Total area under rice in India is 44 million hectares with annual production of 92.76 million tonnes (Anonymous, 2006). In India, attempt to introduce direct seeding in farmer's field often fails owing to non-competitiveness of direct seeded rice to weed. Weed is more in wet seeded rice than in transplanted rice to the extent of 50-60 per cent and even a complete crop failure.

In India, introduction of rice seedings to the field often fails owing to non-competitiveness of rice to weed. Weeds occur frequently in wet seeded than in transplanted rice which results into 50-60 per cent loss in the yield and even complete crop failure. Manual weeding in rice fields is difficult because of problems in differentiating grassy weeds, labour scarcity, time consumption and relatively less effectiveness (Singh *et*

al., 2005).

Rice cultivation consumes 70 per cent water available for agriculture; hence economizing the water use in rice production has been very important and will be indispensable in coming years. The SRI methodology is of interest because of its potential to achieve higher yield at lower cost of production along with saving of water (Krishna *et al.*, 2008).

Chemical weed control using herbicides, along or in mixtures may result in the control of weed species. Weed suppression can also be achieved through crop canopy management. The objective of present study was to evaluate successful weed management in rice fields with various crop establishment techniques and weed control methods and weed management practices.

An experiment was conducted with gujari variety of rice during summer of 2009-10. The experiment was

Table 1: Effect of different weed control methods on weeds, dry weight and yield of rice with weed index

Treatments	Weed intensity (No. 0.25 m ⁻²)		Total dry weight of weed (g 0.25 m ⁻²)	WCE %	Yield kg ha ⁻¹)		Weed index (%)
	Monocot	Dicot			Grain	Straw	
Main plot treatment: Rice establishment techniques							
S ₁ : SRI	26.56	23.12	30.77		4563	5753	
S ₂ : Standard I	22.62	28.63	35.21		3694	4350	
S ₃ : Standard II	23.19	23.01	28.76		3960	4780	
S ₄ : Sprouted seed	29.62	28.93	35.64		3676	4322	
S.E. ±	1.73	1.49	1.50		169.33	186.65	
C. D. (P=0.05)	NS	4.77	4.81		541.72	597.13	
C. V. %	27.20	23.01	18.44		17.04	15.54	
Sub plot treatment: Weed control methods							
W ₁ : Pyrazosulfuron	27.14	22.29	28.87	36	4217	5247	4.20
W ₂ : Rotary weeder	26.23	23.19	29.77	34	4197	5109	4.65
W ₃ : Two hand weeding	24.01	20.07	26.64	41	4402	5493	-
W ₄ : Weedy check	24.61	38.15	45.11	-	3078	3355	30.07
S.E.±	1.24	1.39	1.37		141.90	179.98	
C. D. (P=0.05)	NS	4.01	3.95		407.07	516.21	
C. V. %	19.47	21.59	16.90		14.28	14.99	
Interaction (S×W)	NS	NS	NS		NS	NS	

NS= Non-significant

laid out in two factor Split Plot Design comprising of various establishment techniques *viz.*, 1) SRI (transplanting 10 - 12 days old seedlings with spacing of 25 x 25 cm, 1 plant hill⁻¹ + 100:25:00 kg NPK, 25 kg ZnSO₄ ha⁻¹, 25 % N from FYM) 2) Standard practice I (transplanting 25 - 30 days old seedlings with spacing of 20 x 15 cm, 2 plant hill⁻¹ + 100:25: 00 kg NPK, 25 kg ZnSO₄ ha⁻¹) 3) Standard practice II (transplanting 15 - 20 days old seedlings with spacing of 25 x 25 cm, 2 plant hill⁻¹ + 100:25:00 kg NPK, 25 kg ZnSO₄ ha⁻¹, 25 % N from FYM) and 4) Sprouted seed technique under puddled condition (25 x 25 cm by dibbling, 2-3 seeds hill⁻¹ + 100:25:00 kg NPK, 25 kg ZnSO₄ ha⁻¹) and four weed control methods *viz.*, 1) Pyrazosulfuron @ 150 g ha⁻¹ at 25 and 50 days after transplantation (DAT) 2) Use of rotary weeder at 25 and 50 DAT 3) Two hand weedings at 25 and 50 DAT and 4) Weedy check. All treatments were replicated four times. The sowing of nursery for transplanting was started on 15th December onward with 10 days interval as per the treatment.

A perusal data presented in Table 1 revealed that, the weed intensity and weed dry weight m⁻² were significantly influenced by establishment techniques and

weed management practices. Two hand weedings resulted in better weed control, weed index and rice yield (grain and straw) followed by pyrazosulfuron, rotary weeder. But post emergence application of pyrazosulfuron was found economical than hand weeding followed by rotary weeder.

According to Moorthy (2002) who compared the pyrazosulfuron ethyl @ 10, 15, 30 g ha⁻¹ and PSE + molinate @ 750, 1000, 1250 and 1500 g ha⁻¹, the conclusion was the weed control efficiency ranged from 55.6 to 97.6 per cent.

Saha (2005) concluded that, the hand weeding (30, 60 and 90 DAS) most effectively controlled the weeds and maximized rice grain yield followed by pyrazosulfuron ethyl (25 g ha⁻¹) applied at 10 DAS which controlled the weeds up to 90 per cent.

SRI out yielded direct seeding by recording higher grain and straw yield. SRI provides good aeration, favorable conditions for growth and as a result of which reduce weed competition for nutrient. Similarly, the higher yield was observed due to two hand weedings among the different weed control methods.

REFERENCES

Anonymous (2006). *Importance of agriculture in India*. Pratiyogita Darpan, pp.65-67

Krishna, A., Biradarpatil, N.K. and Channappagoudar, B.B. (2008). Influence of system of rice intensification (SRI) cultivation on seed yield and quality. *Karnataka J. Agric. Sci.*, **21** (3): 369-372.

Moorthy, B.T.S. (2002). Evaluation of pyrazosulfuron ethyl alone and in combination with molinate for controlling weeds in rainfed direct seeded lowland rice. *Indian J. Weed Sci.*, **34**

(3 & 4): 285-286.

Saha, Sanjoy (2005). Evaluation of some new herbicide formulations alone or in combination with hand weeding in direct sown rainfed lowland rice. *Indian J. Weed Sci.*, **37** (1 & 2): 103-104.

Singh, U.P., Singh, Govindra, Singh, R.K., Singh, S.P., Kumar, A., Sharma, G., Singh, M.K., Mortin, Mortimer and Johnson, D.C. (2005). Effect of weed management and crop establishment methods on weed dynamics and grain yield of rice. *Indian J. Weed Sci.*, **37** (3 & 4): 188-192.

★★★★★ 12th Year of Excellence ★★★★★