

Effect of Black Plastic Film Mulching on Weed control in Rice Field

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Objectives

This study was carried out to investigate weed control and rice growth by black plastic film in paddy

Materials & Methods

○ Experimental material

- Rice cultivar : Daeanbyeon

- Mulching material

Vinyl mulching: Black plastic film (1.90m X 195m X 0.02mm)

Paper mulching: Recycled paper + biodegradable PES(1.90m X 195m X 0.02mm)

○ Treatments

- Conventional, Paper mulching, Plastic film mulching

○ Cultivation practice

Seedling type	Transplanting date	Planting density (cm)	Applied fertilizer	N application amount (kg/10a)
30 days (broadcast-box raising seedling)	26. May	30 × 14	Controlled-release fertilizer, LCU(18-7-9)	8.8

Results

- The missing hill was higher at the black plastic film plot than at the paper mulch plot. The plant height of rice was not different at all treatments. The tiller number of rice was little bit high at mulching plots 40 days after transplanting.
- The weed controls of midpoint and edges of paper mulching plot were 92.4 and 86.1, respectively. The weed controls of midpoint and edges of black plastic film mulching were 92.4 and 86.1, respectively. Main occurrence weeds as follows : *Eleocharis kuroguwai*, *Monochoria vaginalis*, *Lindernia procumbens*, *Ludwigia prostrata*, *Scirpus juncoides*, *Cyperus difformis* etc.

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Table 1. The missing hills and growth characteristics of rice by different mulching transplant

Treatment	Missing hill (%)	30 DAT ¹⁾		40 DAT	
		Plant height (cm)	Tiller No. (no./hill)	Plant height (cm)	Tiller No. (no./hill)
Conventional	4.0	39.0	24.1	59.3	25.6
Paper mulching	3.7	41.2	30.9	63.1	31.8
Plastic Film mulching	6.0	39.5	27.2	61.6	28.7

1) DAT . days after transplanting

Table 2 Number of several dominant weeds, dry weight, and weed control by different mulching transplant of rice

Treatment	Occurrence weeds(no. /m ²)							Dry weight (g/m ²)	Weed control(%)
	Ek ¹⁾	Mv	Lp	Lu p	Sj	Cd	Other		
Conventional	0.0	24.4	0.0	1.1	0.0	0.0	1.1	7.6	93.8
Paper mulching									
Midpoint	17.8	4.4	7.8	3.3	0.0	0.0	0.0	9.2	92.4
Edge of two mulching	3.3	0.0	8.9	2.2	7.8	2.2	3.3	16.9	86.1
Plastic Film mulching									
Midpoint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Edge of two mulching	0.0	3.3	0.0	0.0	1.1	0.0	0.0	2.2	98.2
Control	1.9	37.0	20.4	442.6	0.0	14.8	9.3	121.1	-

1) Abbreviations : Ek : *Eleocharis kuroguwai*(을방개) Mv : *Monochoria vaginalis*(물달개비)

Lp : *Lindernia procumbens*(발독외풀) Lu p : *Ludwigia prostrata*(여뀌바늘)

Sj : *Scirpus juncooides*(을챙이고랭이) Cd : *Cyperus difformis*(알방동사니)

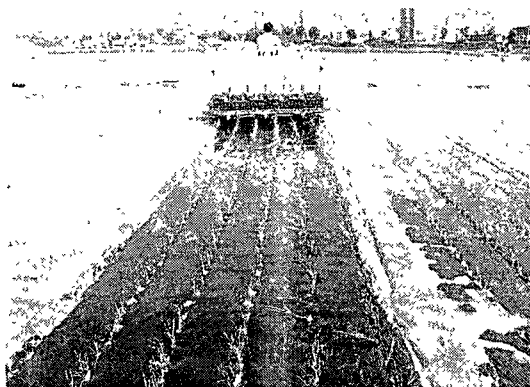


Photo. 1. Scenery of rice transplanting of black plastic film mulching

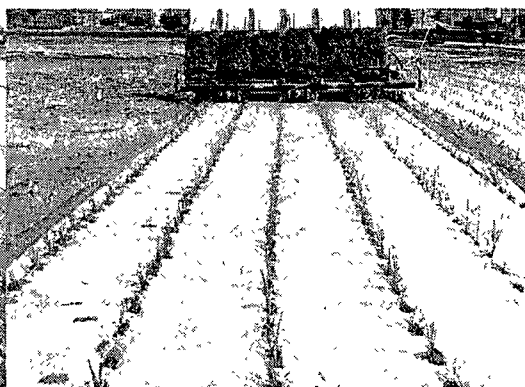


Photo. 2. Scenery of rice transplanting of paper mulching