

Effect of Shattered Seeds at Harvesting Time on Cultivar Purity of Following Growing Season in Soybean

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Objectives

To evaluate the effect of shattered seed on genetic purity of soybean cultivar to be planted at following season in soybean

To get easily the propagation field for soybean generation seed certification program (foundation seed, registered seed, and certified seed) through remodeling the article 12 of The Korean Seed Industry Law to be designed to maintain high levels of genetic purity in soybean.

Materials and Methods

- Seeding date : 14 November, 2004
- Experimental location : an experimental field of YARI, Dalseong-gun, Daegu
- Treatments in details

Table 1. Soybean cultivars used in this experiment

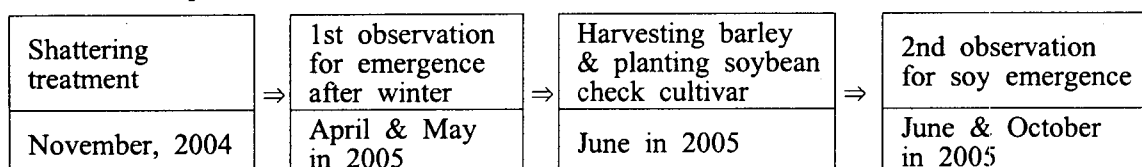
Cultivars	Testa color	Hilum color	Seed weight (g/100seed)	Comments
Taekwang	yellow	yellow	26.0	for soy paste & Tofu
Daewon	yellow	yellow	26.0	for soy paste
Sowon	yellow	light brown	12.5	for sprouting
Tawon	black	black	11.0	for sprouting or functional

Table 2. Soybean shattering treatment and cultural practice

Treatments	in November 2004		in June 2005
	Soybean †	Barley	Soybean check cv.
Mono cropping (soybean)	Seeding (about 900,000 seed/ha)	Non	Cheongdu#1 Non(bare field)
Double cropping (soybean+barley)	Seeding (about 900,000 seed/ha)	Seeding (recommended)	Cheongdu#1 Non(bare field)

† Tawonkong is a cultivar with hardness seed of 16.7%, and the others have no hardness seeds.

Table 3. Experimental field management and observation scheme



- Survey items : percent hardness seed and field emergence of soybean

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Results and Discussion

Soybean cv. Taekwang, Daewon and Sowon did not emerge in all the plots (Table 4), but Tawon with hardness seed of 16.7% emerged 5.9% in soybean mono cropping plot, and 1.8% in barley culture after soybean, respectively (Table 4). This indicates that double cropping system can reduce the emergence of soybean dropped on the ground in last year (Figure 1).

Table 4. Emergence of shattered soybean seeds after wintering depending on cropping systems and hardness seed

Cropping system	Cultivars	Emergence of shattered seed next year (%)			
		After wintering		Next year soybean field	
		26 April	19 May	17 June	27 October
Soybean mono cropping	Taekwang	-	-	-	-
	Daewon	-	-	-	-
	Sowon	-	-	-	-
	Tawon	5.9(270 [*])	5.9(267 [*])	-	-
Soybean+Barley double cropping	Taekwang	-	-	-	-
	Daewon	-	-	-	-
	Sowon	-	-	-	-
	Tawon	1.8(84 [*])	1.8(83 [*])	-	-



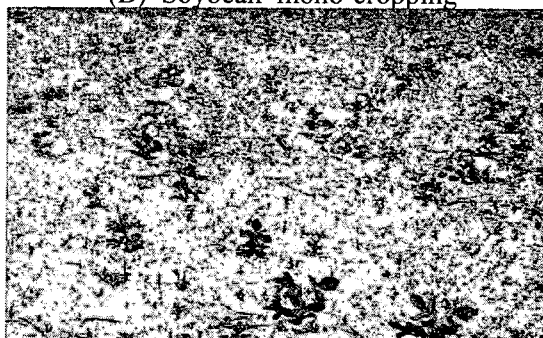
(A) Soybean-barley double cropping



(B) Soybean mono-cropping



(C) Soybean-barley double cropping



(D) Soybean mono-cropping

Figure 1. Photographs for emergence of shattered soybean seeds after wintering (A and B, cv. Taekwang, Daewon, and Sowon; C and D, cv. Tawon)

Literature Cited

1. Armstrong, J. 1994. The role of certified seed in the twenty-first century. Presented at the 1994 annual meeting of the association of official seed certifying agencies.
2. Ministry of Agriculture & Forestry. 2006. Regulation relative to the application of seed industry law.