

동계하우스의 차광재배가 풋마늘 생산에 미치는 영향

최인후, 남상식, 정동희¹⁾, 권병선²⁾

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Effect of Shade Culture on Fresh Yield of Garlic at Vinyl House in Winter

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실험목적

풋마늘 생산 하우스 재배법을 확립하여 동계신선채소 공급에 기여하고자함.

재료 및 방법

가. 공시품종 : 남도, 대서, 자봉, 고흥 재래종 마늘

나. 처리내용

차광처리	품종	비고
차광	4품종	○차광시기(월, 일) : 9.1~10.10
무차광		○차광망 : 50%

다. 재배법

재식거리(cm)	파종(월, 일)	수확	시비량(kg/10a)
20×10	9.1	당년 12월~익년 1월	N-P ₂ O ₅ -K ₂ O 25-7.7-12.8

라. 시험배치법 : 분할구 배치법 3반복

결과요약

1. 차광처리 기간중 하우스내 기온은 차광구가 무차광구에 비해 최고 2.6℃, 최고 1.9℃, 평균 2.1℃ 낮았음.

2. 출현기는 무차광에 비해 차광구가 평균 14일 단축되었으며 출현율은 5.9% 높았음.
3. 수확기별 생육 및 수량
 - 1) 초장, 엽수, 엽초장, 엽초경, 생체중, 수량 등 모든 형질이 처리간에 유의성이 인정되었으며, 품종간에도 유의성이 인정되었음.
 - 2) 12월의 조기 출하 품종은 차광구의 자봉 마늘이며, 1월의 출하 품종은 자봉, 남도 마늘임.
 - 3) 10a당 조수입은 차광처리구가 무차광 처리구에 비해 12월중 자봉 마늘이 173%, 남도마늘이 165%이며, 1월에는 자봉마늘 184%, 남도마늘 195%였다.

Table 1. Variabilities of meteorological factors for two experimental months (from September 1 to October 10) at vinyl house in winter of 1996.

Culture	Month	Period of ten days	Air temperature (°C)		
			Max.	Min.	Mean
Shade	September	First	24.8	18.2	21.5
	September	Middle	23.0	11.6	17.2
	September	Last	21.5	12.8	15.8
	October	First	20.6	9.0	15.8
	Mean			22.5	12.9
Non shade	September	First	27.8	20.8	24.0
	September	Middle	25.0	12.6	18.7
	September	Last	24.6	14.3	19.1
	October	First	22.9	11.4	16.8
	Mean			25.1	14.8

Table 2. Comparison of growth habit of garlic under different culture with shade and non shade in vinyl house in winter.

Culture	Variety	Emergence date	Emergence rate (%)	Plant height (cm)	No. of leaves
Shade	Jabong	Sep. 18	97.0	38	4.2
	Namdo	Sep. 30	94.3	24	3.8
	Taesu	Sep. 27	97.2	27	4.2
	Koheung	Oct. 2	92.3	19	3.3
	Mean	Sep. 27	95.2	27	3.9
Non shade	Jabong	Sep. 28	89.3	30	4.2
	Namdo	Oct. 16	93.5	17	3.8
	Taesu	Oct. 12	84.9	21	3.7
	Koheung	Oct. 18	77.0	17	2.1
	Mean	Oct. 11	89.3	21	3.5

Table 3. Comparison of agronomic characters of garlic under the harvesting time in December winter.

Culture	Variety	Plant height (cm)	No. of leaves	Length of leaf sheath	Diameter of leaf sheath	Fresh wt. (g/plant)	Yield (kg/10a)
Shade	Jabong	58	7.5	15.1	1.2	38.2	1,410
	Namdo	51	6.9	10.4	0.9	21.3	766
	Taesu	33	7.1	5.1	0.8	10.3	373
	Koheung	27	5.5	4.8	0.8	8.7	307
	Mean	42	6.8	8.9	0.9	19.6	714
Non shade	Jabong	49	7.0	11.0	1.1	24.0	814
	Namdo	39	5.4	7.8	0.8	13.0	463
	Taesu	33	6.0	4.7	0.7	10.9	353
	Koheung	26	5.0	4.7	0.6	7.7	256
	Mean	37	5.9	7.1	0.7	13.9	471

Table 4. Analysis of variance for main characters of garlic varieties and culture with shade of non shade.

Characters	Culture (A)	Variety (B)	A × B
Plant height (cm)	7.57*	6.19**	2.66
No. of leaves	12.72**	8.80**	1.21
Length of leaf sheath(cm)	7.55*	34.14**	1.88
Diameter of leaf sheath(cm)	9.22*	13.31**	0.37
Fresh weight (g/plant)	4.88*	15.04**	1.60
Yield (kg/10a)	6.50*	14.94**	1.77

Table 5. Comparison of agronomic characters of garlic under the harvesting time in January winter.

Culture	Variety	Plant height(cm)	No. of leaves	Length leaf sheath(cm)	Diameter of leaf sheath(cm)	Fresh wt.(g/plant)	Yield (kg/10a)
Shade	Jabong	67	8.0	21.1	1.2	50.3	1,856
	Namdo	53	7.0	13.0	1.1	28.4	1,023
	Taesu	36	7.1	6.4	1.0	16.9	609
	Koheung	31	5.9	6.2	0.9	12.2	430
	Mean	47	7.0	11.7	1.1	27.0	980
Non shade	Jabong	55	7.4	15.2	1.0	29.7	1,011
	Namdo	42	6.1	9.9	0.9	14.8	523
	Taesu	32	6.7	5.7	0.9	12.7	410
	Koheung	28	5.3	5.2	0.8	11.1	327
	Mean	39	6.4	9.0	0.9	17.1	568

Table 6. Analysis of variance for main characters of garlic varieties and culture with shade or non shade.

Characters	Culture(A)	Variety(B)	A × B
Plant height(cm)	13.01**	45.85**	1.51
No. of leaves	13.07**	37.46**	0.16
Length of leaf sheath(cm)	21.33**	101.31**	4.03
Diameter of leaf sheath(cm)	5.35**	2.06	0.62
Fresh weight(g/plant)	7.61**	12.42**	1.45
Yield(kg/10a)	9.80**	12.83**	1.63

Table 7. Economic analysis of fresh weight of garlic of 10a in the different harvesting time.

Culture	Variety	Gross profit(W)Harvesting time	
		December	January
Shade	Jabong	1,410,000	1,484,000
	Namdo	766,000	818,400
	Taesu	373,000	487,200
	Koheung	307,000	344,000
Non shade	Jabong	814,000	808,800
	Namdo	463,000	418,400
	Taesu	353,000	328,000
	Koheung	256,000	261,600

*Price : Auctioning price of medium quality in Karakdong market.

December : 1,000W/kg

January : 800W/kg