

영양 浸水時期에 品種間 生理的 特性과 收量形質에 미치는 影響
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Effect of Different Flooding date on Physiological characteristics and
 Yield Characters in Peanut Varieties

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實驗目的

草型이 다른 몇가지 品種을 浸水處理하여 浸水時期別로 品種間 生理的 反應과 生育 및 收量에 미치는 影響을 究明코자 本 試驗을 遂行하였다.

材料 및 方法

浸水時期는 R₁ (開花盛期), R₂ (結莢初期), R₃ (結莢中期), R₄ (結莢後期) 與處理 等 上處理를 主區로 하였고 供試品種으로 서울땅콩, 大丘땅콩, span cross, ICG-11, V-44, Florispan, M13 等 7品種을 細區로 하여 5月1日 播種하였다. 浸水時間은 8時間 (2日)으로 하여 땅콩 主莖基部까지 浸水시켰고 施肥量은 R₁年으로 換算하여 全量基肥로 5000g Wagner pot에 栽培하였다. 各生育段階에 特性調查用 sample pot는 別處로 設置하여 葉綠素含量, 根活力等을 測定하였고 生育 및 收量構成要素, 收量은 調査하였다.

結果 및 考察

1. 葉綠素含量, 生根率, 根活力은 浸水處理로 無浸水에 比하여 모두 減少되었고 浸水時期 및 品種에 따라 減少의 差가 甚하다.
2. 浸水處理에 依하여 主莖長은 서울땅콩, 大丘땅콩, span cross 와 ICG-11은 짧아졌으나 Florispan, M13은 길어졌고, 分枝長은 ICG-11, Florispan, M13에서 길어졌으며, 總分枝數는 V44과 M13品種에서 많아졌다.
3. 株莖莢數, 成熟莢率, 100粒重, 莢實比率 및 收量은 浸水時期에 關係가 있어 모두 減少되었으나 結莢中期 以後 浸水가 減少差가 甚大인 편이었다. 品種別 減收程度는 span cross 와 ICG-11은 15~40%로 작은 편이었고 서울땅콩과 大丘땅콩은 30~40%로 中程度이 되었으며 M13, Florispan과 V44은 20~50%로 크게 나타났었다.

Table Chlorophyll content of main stem of leaves peanut varieties under different flooding date on fifth days after 48 hours flooding.

Flooding date (F)	Variety (V)	Chlorophyll content (mg. g.F.W)		Difference (A - B)	
		Unflooding (A)	Flooding (B)		
June 25 (Flowering period)	Saedlettangkong	1.73	0.90	0.83	
	Daekwangttangkong	1.40	0.95	0.45	
	Span cross	1.44	0.78	0.66	
	ICC - II	1.17	0.94	0.23	
	V 48	1.73	0.59	1.14	
	Florispan	1.55	0.62	0.93	
	M 13	1.74	0.49	1.25	
	Average	1.54	0.74	0.80	
	July 21 (Early stage of podding)	Saedlettangkong	1.02	1.47	0.25
		Daekwangttangkong	1.94	1.62	0.32
Span cross		1.60	1.49	0.11	
ICC - II		1.70	1.05	0.70	
V 48		2.22	1.61	0.61	
Florispan		2.11	1.19	0.96	
M 13		2.10	1.72	0.46	
Average		1.85	1.44	0.51	
Aug. 23 (Mid stage of podding)		Saedlettangkong	1.40	1.25	0.23
		Daekwangttangkong	1.69	1.15	0.54
	Span cross	1.56	0.93	0.63	
	ICC - II	1.53	0.94	0.59	
	V 48	1.76	1.06	0.70	
	Florispan	1.33	0.96	0.37	
	M 13	1.25	0.91	0.34	
	Average	1.51	1.01	0.50	
	Sept. 19 (Late stage of podding)	Saedlettangkong	1.32	1.13	0.19
		Daekwangttangkong	1.51	1.03	0.48
Span cross		1.43	0.97	0.46	
ICC - II		1.20	0.82	0.56	
V 48		1.57	0.72	0.85	
Florispan		1.22	0.87	0.35	
M 13		1.13	0.92	0.21	
Average		1.36	0.92	0.44	
LSD (5%) Flooding date(F)		0.24	0.12	0.12	
Variety(V)		0.19	0.10	0.20	
F ₀ V ₀ - F ₀ V ₁	0.30	0.10	0.40		
F ₀ V ₀ - F ₁ V ₀	0.41	0.22	0.39		

Table Root oxidizing power of peanut varieties under different flooding date on fifth days after 48 hours flooding.

Flooding date (F)	Variety (V)	Root oxidizing power (μ.g.g.F.W. hr)		Difference (A - B)	
		Unflooding (A)	Flooding (B)		
June 25 (Flowering period)	Saedlettangkong	47.9	37.3	10.6	
	Daekwangttangkong	54.2	33.8	20.4	
	Span cross	50.5	40.4	10.1	
	ICC - II	47.9	39.5	8.4	
	V 48	60.4	54.0	6.4	
	Florispan	57.1	44.2	12.9	
	M 13	52.1	30.6	21.5	
	Average	54.4	39.0	14.6	
	July 21 (Early stage of podding)	Saedlettangkong	80.1	67.5	12.6
		Daekwangttangkong	105.3	52.3	53.0
Span cross		100.3	80.3	20.0	
ICC - II		104.8	84.6	20.2	
V 48		101.7	70.2	31.5	
Florispan		102.5	86.7	15.8	
M 13		105.6	92.1	13.5	
Average		103.0	79.0	24.0	
Aug. 23 (Mid stage of podding)		Saedlettangkong	77.1	24.4	52.7
		Daekwangttangkong	85.5	24.4	61.1
	Span cross	52.9	35.6	17.3	
	ICC - II	45.5	24.2	21.3	
	V 48	44.0	32.5	11.5	
	Florispan	43.8	19.6	24.2	
	M 13	65.0	27.7	37.3	
	Average	59.4	28.9	30.5	
	Sept. 19 (Late stage of podding)	Saedlettangkong	96.3	49.0	47.3
		Daekwangttangkong	98.3	49.5	48.8
Span cross		73.0	55.0	18.0	
ICC - II		40.2	20.9	19.3	
V 48		42.9	24.0	18.9	
Florispan		43.0	19.6	23.4	
M 13		61.7	41.7	20.0	
Average		66.4	36.2	30.2	
LSD (5%) Flooding date(F)		12.59	5.76	10.58	
Variety(V)		8.50	8.27	10.95	
F ₀ V ₀ - F ₀ V ₁	10.99	16.55	21.90		
F ₀ V ₀ - F ₁ V ₀	21.01	16.25	22.56		

Table Length of main stem of seven peanut varieties under different flooding date.

Variety	Flooding date				Average
	Control	June 25	July 21	Aug. 23 Sept. 19	
	- cm -				
Saedlettangkong	47.7	36.3	42.3	40.3	41.8
Daekwangttangkong	46.7	43.0	44.7	46.0	43.2
Span cross	47.3	46.0	41.7	41.3	43.9
ICC - II	50.0	45.7	47.7	40.3	45.1
V 48	49.3	50.0	50.3	44.0	48.7
Florispan	45.7	53.3	49.3	45.7	48.1
M 13	35.7	42.3	46.3	45.7	42.7
Average	45.2	46.0	43.6	43.0	46.0
LSD (5%) Flooding date(F)	NS				
Variety(V)	3.4				
F ₀ V ₀ - F ₀ V ₁	7.6				
F ₀ V ₀ - F ₁ V ₀	7.7				

Table Matured pod ratio of seven peanut varieties under different flooding date.

Variety	Flooding date				Average
	Control	June 25	July 21	Aug. 23 Sept. 19	
Saedlettangkong	77.4	58.5	59.6	60.4	49.9
Daekwangttangkong	73.8	62.8	63.3	61.2	51.3
Span cross	69.8	59.0	62.0	64.3	60.5
ICC - II	69.4	65.6	66.8	62.1	60.5
V 48	65.9	45.1	50.5	56.0	43.6
Florispan	73.4	52.3	62.5	59.4	56.8
M 13	64.3	54.4	59.7	59.5	55.0
Average	70.6	56.8	60.8	60.4	54.0
LSD (5%) Flooding date(F)	8.3				
Variety(V)	7.1				
F ₀ V ₀ - F ₀ V ₁	15.0				
F ₀ V ₀ - F ₁ V ₀	16.8				

Table Number of pods per plant of seven peanut varieties under different flooding date.

Variety	Flooding date				Average
	Control	June 25	July 21	Aug. 23 Sept. 19	
Saedlettangkong	45.3	43.3	43.3	37.0	38.0
Daekwangttangkong	51.0	39.3	37.3	35.3	37.3
Span cross	65.7	45.0	34.0	44.3	45.0
ICC - II	45.7	39.7	42.7	38.7	40.7
V 48	53.7	30.3	26.3	37.3	37.7
Florispan	49.7	29.0	29.0	31.7	31.3
M 13	21.3	19.3	16.0	18.0	14.3
Average	47.5	35.1	32.7	34.6	34.9
LSD (5%) Flooding date(F)	6.5				
Variety(V)	6.2				
F ₀ V ₀ - F ₀ V ₁	13.9				
F ₀ V ₀ - F ₁ V ₀	14.4				

Table Kernel yield of seven peanut varieties under different flooding date.

Variety	Flooding date				Average
	Control	June 25	July 21	Aug. 23 Sept. 19	
	- g -				
Saedlettangkong	41.6	26.4	26.4	24.8	26.0
Daekwangttangkong	39.9	25.6	29.0	25.0	25.2
Span cross	39.3	24.0	33.5	28.8	23.7
ICC - II	32.0	22.1	26.0	20.2	22.6
V 48	32.4	21.4	16.2	23.5	19.1
Florispan	34.1	17.0	21.7	22.1	18.2
M 13	27.6	11.4	12.7	15.4	11.7
Average	35.3	21.1	23.7	22.8	20.9
LSD (5%) Flooding date(F)	3.1				
Variety(V)	3.0				
F ₀ V ₀ - F ₀ V ₁	6.8				
F ₀ V ₀ - F ₁ V ₀	7.0				