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생육시기별 토양수분이 콩의 생육에 미치는 영향

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Soybean Growth and Development Affected by Soil water Stress at the Different Stages

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실험목적

콩의 주요 생육단계별 토양수분 Stress가 생장 및 수량 구성요소에 미치는 영향과 회복정도를 구명하여 콩 논 재배시 안정재배 기초자료를 제공코자 함.

재료 및 방법

- 시험품종 : 태광콩
- 시험토양 : 미사질 양토
- 재배법

파종기 (월·일)	주당본수 (본)	시비량(kg/10a)		
		N	P ₂ O ₅	K ₂ O
6 . 13	2	3	3	3.4

- 처리내용
 - 토양수분 함량 : -1 kPa, -10 kPa, -100 kPa, -1,000 kPa
 - 처리시기 및 기간 : V6, R1, R5 각각 10일간

실험결과

- 콩의 생육은 과습보다 한발에 의한 생육장해를 많이 받았음.
- 영양생장기의 수분Stress는 생식생장기의 적습에 의해 회복되어 수량의 차이가 없었음.
- 개화시의 한발은 립수를 감소 시켰고, 립비대시 한발은 100립중을 현저히 감소 시켰음.

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Table 1. Comparison of soybean characters affected by soil water stress at the 5th foliage stage.

Soil water content	Stem length (cm)	No. of branches / plant	No. of node / main stem	No. of seed /plant	100-seed wt.(g)	Yield (g/plant)
-1 kPa	66.1	6.8	16.1	97.9	23.8	17.6 a [†]
-10 kPa	68.9	7.6	16.6	90.8	22.8	17.5 a
-100 kPa	63.0	6.3	16.3	88.3	22.7	17.1 a
-1,000 kPa	59.8	6.6	16.0	93.5	22.4	16.5 a

† Means with same/different letters within the same column stand for the significant differences at 5% level by DMRT.

Table 2. Comparison of soybean characters affected by soil water stress at the 1st flowering stage.

Soil water content	Stem length (cm)	No. of branches / plant	No. of node main stem / plant	No. of seed /plant	100-seed wt.(g)	Yield (g/plant)
-1 kPa	66.5	6.1	16.3	76.6	23.4	13.7 b
-10 kPa	69.1	6.3	16.0	98.8	22.0	16.1 a
-100 kPa	64.4	6.4	16.1	81.0	23.3	13.3 b
-1,000 kPa	60.4	6.3	15.9	65.8	23.2	13.2 b

Table 3. Comparison of soybean characters affected by soil water stress at the beginning of seed development stage.

Soil water content	Stem length (cm)	No. of branches / plant	No. of node main stem / plant	No. of seed /plant	100-seed wt.(g)	Yield (g/plant)
-1 kPa	72.3	7.3	16.3	71.5	20.9	14.2 ab
-10 kPa	67.9	7.5	16.4	73.3	22.4	15.6 a
-100 kPa	62.4	7.3	16.2	71.9	17.5	12.1 bc
-1,000 kPa	61.3	7.3	16.6	72.8	12.2	12.0 bc