

## Cultivation techniques on Reduction of Lodging in Sesame (*Sesamum indicum* L.)

Kyu-Hwan Choi\* , Mun-Ho Sung, Yoon-Ki Hong, Jung-Seob Moon  
Young-Jik Jang, and Dong-Chill Choi  
*Jeollabuk-do Agricultural Research and Extension Services*

### Objectives

Sesame have been easily lodged by wind in typhoon and heavy rain. This study was conducted to search the methods for reduction of lodging of sesame.

### Materials and Methods

Cultivar	Sowing date	Treatments	Treating time	Planting density (cm)
Ansan	5-Jun.	Potassium(150%)	before sowing	interrow 30×
		Ethephon(10ml/20ℓ)	2 times after flowering	intrarow10
		C.C.C.(70ml/20ℓ)	2 times after flowering	(20,000plants
		Netting	before flowering	/10a)

### Results

- Average temperature in 2004 was higher as 2°C than 2003, hours of daylight in 2004 was much more, amount of rainfall in July, 2003 was also more to 2004.
- In the potassium was fertilized 150% than control, although rate of infected plant by phytophthora(RIPP) was higher than control, lodging rate, stem height, number of capsule per plant and 1,000 seed weight were better. Therefore yield was increased by 17% against control.
- In the ethephon treatment, stem height was shorter, RIPP and lodging rate were decreased. But number of capsule per plant and 1,000 seeds weight were decreased, yield was decreased by 13% than that.
- In the C.C.C. treatment, ripening date was delayed 5 days than control, lodging was effected to stem height which shortened. But yield was decreased by 6%, although branches and capsule numbers were increased.
- In the netting, lodging and phytophthora rot was scarcely occurred. Number of capsule per plant was much more, 1,000-seed weight was heavier and yield was increased by 32% than that.

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\*Corresponding author : Tel : 063-839-0336 E-mail : ckhann@daum.net

Table 1. Weather states

(Iksan, Jeonbuk province)

Month		Average temp. (°C)		daylight (hrs.)		Amount of rainfall(mm)	
		'03	'04	'03	'04	'03	'04
Jun.	early	21.6	21.7	79.9	70.3	0.0	13.3
	middle	21.7	22.7	43.2	51.0	45.0	44.3
	late	22.0	23.4	36.9	45.0	28.0	75.6
	<b>mean</b>	<b>21.8</b>	<b>22.6</b>	<b>53.3</b>	<b>55.4</b>	<b>24.3</b>	<b>44.40</b>
Jul.	early	22.5	23.9	20.2	33.6	298.5	84.0
	middle	22.8	25.1	39.7	23.2	125.0	64.3
	late	25.2	27.7	42.1	83.4	164.5	104.0
	<b>mean</b>	<b>23.5</b>	<b>25.6</b>	<b>34.0</b>	<b>46.7</b>	<b>196.0</b>	<b>84.10</b>
Aug.	early	25.3	28.0	43.4	81.3	36.0	66.4
	middle	23.4	26.3	37.6	46.3	83.0	46.5
	late	23.8	24.2	28.1	52.3	85.0	124.8
	<b>mean</b>	<b>24.2</b>	<b>26.2</b>	<b>36.4</b>	<b>60.0</b>	<b>68.0</b>	<b>79.2</b>

Table 2. Growth on the treatments

Treatments	Flowering date	Ripening date	Stem length (cm)	Stem length capsuled (cm)	No. of branch 2 capsuled
Potassium 150%	7. 22	9. 5	107	32	0.8
Ethephon	7. 22	9. 8	89	33	1.0
C.C.C.	7. 22	9. 10	71	27	2.4
Netting	7. 22	9. 7	109	35	1.3
Control	7. 22	9. 5	102	34	1.0

Table 3. Yield on the treatments

Treatment	RIPP <sup>z</sup>	Lodging rate (%)	No. of capsule per plant	1000 seeds weight (g)	Yield	
					(kg/10a)	index
Potassium 150%	40.9	28.9	52	2.36	74	117
Ethephon	8.2	24.2	39	2.16	55	87
C.C.C.	28.2	38.8	50	2.18	59	94
Netting	13.7	2.0	49	2.50	83	132
Control	33.4	54.3	45	2.27	63	100

<sup>z</sup> : Rate of infected plant by phytophthora rot