

벼짚切斷 施用後 보리 細條播 栽培時 窒素 增追肥效果

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Effects of Increased Nitrogen Fertilizer for Drilling After Cutting the Rice Straw
by Combine on Yield and Agronomic Characters of Barley

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實驗目的

벼 收穫時 콤바인 카타로 벼짚을 切斷하여 施用한 後 보리를 트랙타附着機로 細條播하여 栽培할 때의 適正 施肥方法을 模索하고자 함.

材料 및 方法

1992 ~ 1993年 2個年間 慶北農村振興院 畜裏作 圃場인 大谷 砂壤土에서 을보리를 供試하여 벼 收穫時 콤바인 카타로 벼짚을 切斷 施用한 後 트랙타附着 播種機를 利用하여 10月 30日에 平面 細條播하였다.

施肥水準(標準肥 : N - P O - K O = 15.0 - 13.2 - 8.4 kg/10a, 25% 增肥)을 主區로 窒素追肥量(標準, 25%增肥, 50%增肥)을 細區로 한 分割區配置 3反復으로 試驗하였다.

實驗結果 및 考察

排水 良好한 砂壤土에서 벼 收穫時 콤바인 카타로 벼짚을 切斷하여 施用한 後 보리 平面細條播 栽培時의 合理的인 施肥方法을 模索하고자 試驗한 結果

1. 施肥水準 平均間에 있어 25% 增肥時 標準肥에 比하여 成熟期가 1日 程度 늦고 倒伏이 많이 되었으며, 生育 및 收量 差異는 거의 없었다.
2. 벼짚施用 後 보리 平面細條播 栽培時 窒素 追肥量을 50% 增施하면 13% 增收되었다.
3. 施用된 벼짚의 腐熟은 매우 緩慢하게 進行되었으며 보리 成熟期에도 34% 程度만 腐熟되었고, 窒素 追肥量을 늘려도 벼짚의 腐熟은 달라지지 않았다.
4. 따라서 벼짚切斷 施用後 보리栽培時 窒素追肥量을 50% 增施하면 施用된 벼짚의 分解促進에는 效果가 없지만 벼짚施用에 따른 보리의 生育不振을 막고 生育助長 및 收量性 向上에 效果的 이었다.

Table 1. Growth characters of barley influenced by fertilizer level for basal and nitrogen topdressing

Fertilizer level (kg/10a)	Nitrogen topdressing level	Maturing date	Lodging degree (0~9)	Culm length (cm)	Total plant wt. (g)			
					Max.til. stage	Booting stage	Heading stage	Maturing stage
* Standard	** Standard	June 8	0	78	144	348	506	1,028
	Added 25%	June 8	0	79	144	343	522	1,106
	Added 50%	June 9	0.5	80	151	356	548	1,149
	Mean	June 8	0.2	79	146	349	525	1,103
Added 25%	Standard	June 8	1.5	81	165	369	577	1,170
	Added 25%	June 9	1.5	80	162	361	560	1,120
	Added 50%	June 10	3.0	80	162	372	561	1,143
	Mean	June 9	2.0	80	163	367	566	1,144

* N - P O - K O = 15.0 - 13.2 - 8.4 kg/10a

** Basal : topdressing = 40 : 60%

Table 2. Yield and yield components of barley influenced by fertilizer level for basal and nitrogen topdressing

Fertilizer level (kg/10a)	Nitrogen topdressing level	No. of spike per m ²	No. of grain		1,000 grain wt. (g)	Yield (kg/10a)	Index of yield
			/spike	/m ²			
Standard	Standard	465	35.4	16,461	35.0	336	100
	Added 25%	478	36.1	17,256	35.2	355	106
	Added 50%	484	36.0	17,424	35.7	379	113
	Mean	476	35.8	17,047	35.3	357	-
Added 25%	Standard	502	35.7	17,921	35.5	366	109
	Added 25%	485	35.5	17,218	35.7	367	109
	Added 50%	488	35.8	17,470	35.4	357	106
	Mean	492	35.7	17,536	35.5	363	-

LSD(5%)
 Between the means of main plot _____ NS
 Between the means of sub plot _____ NS
 Between the means within groups _____ 23.1
 Between the means within different groups _____ 218.5

Table 3. Percent of corrosion of rice straw applied by cutting with combine at different growth stage of barley

Fertilizer level (kg/10a)	Nitrogen topdressing level	Percent of corrosion of rice straw			
		Early til. stage	Max.til. stage	Heading stage	Maturing stage
Standard	Standard	25.9	30.4	31.3	34.2
	Added 25%	26.7	30.8	32.0	34.2
	Added 50%	26.1	30.0	32.3	34.5
	Mean	26.2	30.4	31.9	34.3
Added 25%	Standard	26.9	30.5	32.4	34.9
	Added 25%	26.8	30.4	31.9	36.1
	Added 50%	26.8	31.0	32.3	35.5
	Mean	26.8	30.6	32.2	35.5