벼 乾畓直播栽培時 播種期 移動과 窒素分施 方法에 따른 生育 및 收量形質 反應

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Growth and Reaponse of Yield Charaeters by Different Seeding Date and Nitrogen Split Application at Direct Seeding in Dry Paddy Field

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試驗目的

벼 乾畓直播 栽培時 播種期 移動과 窒素 分施 方法에 따른 生育 및 收量 形質 反應을 調査하여, 適正 播種期및 窒素分施方法 究明의 基礎資料로 活用코저함.

材料 및 方法

適正播種期 究明을 위하여 早生種인 雲峰과 中晩生種인 密陽95號를 4月25日부터 15日 間隔으로 6月10日까지 4處理를 播種量 5kg/10a, 播種距離 25cm로 調節하여 乾種子로 直播하였다.

窒素分施 方法은 密陽 95號를 供試하였으며, 窒素는 10kg, 15kg/10a을, 分施比率은 50%(基肥)-30%(5葉期)-20%(穗肥)等 2處理를한後 生育및 收量形質을 調査하였다

試驗結果 및 考察

1. 播種期 遲延에 따른 品種別 出芽日數 및 出穗反應은 雲峰, 密陽95號 공히 播種期가 遲延됨에 따라 短縮되었으며 立苗率은 62%程度였다. 播種後50-70日 사이의 CGR은 두 品種 공히 5月25日 播種에서 높았다.
2. 收量에 대한 Source形質中 收量構成要素의 影響度를 보면 雲峰의 경우 出穗期 莖當葉面積, ㎡當 穗數의 順이였으며 密陽 95號는 殘有葉面積, 穎花數의 順으로 높은 直接效果를 나타내었다.
3. 施肥量 및 分施 比率에 따른 出芽日數, 立苗率, 播種後 50-70日 사이의 CGR 그리고 有效莖 比率에서 큰 差가 없었다.
4. 施肥量 및 分施比率에 따른 生長量 및 Sink能力을 보면 出穗期 莖當葉面積, 光合成, LAD, 穗當 Sink Capacity 그리고 Sink/Source ratio의 경우 각 處理 施肥量 공히 30%(基肥)-25%(3葉期)-25%(5葉期)-20%(穗肥)에서 높았으며, 收量反應은 10ka/10a 보다는 15ka/10a處理에서, 分施比率에서는 30%(基肥)-25%(3葉期)-25%(5葉期)-20%(穗肥)에서 높은 傾向이었다.

Table 1. Number of days from seeding to seedling emergence, percentage of seedling per m^2 and CGR according to seeding date

Seeding date	Unbongbyeo			Milyang 95		
	Days for emergence	percentage ofseedling	*C G R ($g/m^2/day$)	Days for emergence	percentage of seedling	C G R ($g/m^2/day$)
April 25	21	63.8	14.4	21	63.4	14.6
May 10	12	67.8	21.7	12	68.7	22.0
May 25	12	58.4	31.4	12	59.2	29.3
Jun 10	9	60.2	26.2	9	60.2	23.5

* : 50 - 70 after Seeding

Table 2. Path coefficient of source and yield component to yield

Variety	Item	C G R	LA/T	Leaf Sene	P K S	S / P	P / m^2
Unbongbyeo	C C	0.931	0.980	0.774	0.965	0.983	0.914
	D E	-0.877	1.023	-0.050	0.004	0.320	0.587
Milyang 95	C C	-0.233	0.969	0.979	0.574	0.776	0.757
	D E	-0.432	-0.900	1.499	0.006	0.698	-0.320

LA/T : Leaf Area/Tiller at heading stage, Leaf Sene : Heading stage-residual leaf Area during 20days after heading, PKS : Potential Kernal Size, S/P : No. of Spikelet/Panicle, P/m^2 : No. of Panicle/m^2, CC : Correlation Coefficient, DE : Direct Effect

Table 3. Growth and Ratio of Seedling according to differernt Nitrogen level and ratio of split application

N L	Ratio of Nitrogen Split application				Days for Emergence	Ratio of Seedling	*C G R	Ratio of Effcetive Tiller
(kg/10a)	BF	TLS	FLS	FPIS	(days)	(%)	($g/m^2/days$)	(%)
10	50		30	20	12	66.0	21.3	71.8
	40		30	30	12	63.8	15.8	66.2
	30	25	25	20	12	61.6	19.9	69.5
15	50		30	20	12	68.2	24.6	70.1
	40		30	30	12	63.8	17.5	66.8
	30	25	25	20	12	66.0	22.1	68.8

* : 7.11 - 8.1 , N L : Nitrogen Level, B F : Basal Fertilizer
TLS : Third Leaf Stage , FLS : Fifth Leaf Stage , FPIS : Fertilization at Panicle Initiation Stage

Table 4. Growth index and sink capacity at different nitrogen level and ratio of nitrogen split application

N L	Ratio of Nitrogen Split application				LA/T	*Photo μmol/ m^2/sec	LAR	LAD	SC/P	S/S Ratio	Yield (kg/10a)
(kg/10a)	BF	TLS	FLS	FPIS							
10	50		30	20	112	2.70	53.8	94	2315.5	16.7	410
	40		30	30	125	2.88	47.6	98	2406.1	16.7	463
	30	25	25	20	130	3.00	50.3	110	2631.6	17.3	473
15	50		30	20	138	3.18	41.7	102	2435.3	21.7	516
	40		30	30	144	3.40	44.6	123	2771.8	22.0	527
	30	25	25	20	152	3.70	41.6	134	2871.4	22.0	533

* : Photosynthesis , N L : Nitrogen Level, B F : Basal Fertilizer
TLS : Third Leaf Stage , FLS : Fifveth Leaf Stage , FPIS : Fertilization at Panicle Initiation Stage , LA/T : Leaf Area/Tiller, LAR : Leaf Area Ratio
SL/P : Sink Sapacity/Panicle , S/S Ratio : Sink/Source Ratio