

南部地方 벼 麥後作 直播栽培에 관한 研究

Ⅲ. 播種方法에 따른 省力效果, 生育 및 收量性

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Studies on After-barley-direct-sown Paddy Rice in Southern Korea

Ⅲ. Labor-saving effect and rice productivity under different mechanical methods

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< 試驗目的 >

南部地方에서 벼 麥後作 直播栽培時 播種方法別 省力化 效果 및 收量성을 比較

< 材料 및 方法 >

○ 播種方法 比較試驗

'90~'91년에 東海벼를 供試하고, 湛水土中直播機, 畦立細條播種機, 機械移秧 등 6處理로 하여 '90년에는 6月 7日 直播(機械移秧時는 移秧日), '91년에는 6月 1日 直播하였음.

○ 벼 麥後作 直播 實證試驗

'90~'91년에 東海벼를 供試하고, '90년에는 平野地인 晉州, 海岸地인 河東, 固城 등 3個地에서 晉州는 6月 1日, 河東 6月 2日, 固城 6月 5日 각각 直播하였고, '91년에는 3個所 外에 泗川 등 4個所에서, 晉州는 6月 1日, 河東과 固城 6月 5日, 泗川 6月 7日 각각 直播하여 實證試驗을 遂行하였다.

< 試驗結果 및 考察 >

1. 벼 麥後作 直播時 適切한 播種方法을 究明하기 위해 湛水土中直播機, 畦立細條播種機등으로 遂行한 結果, 畦立細條播種機에 의한 播種勞力이 10a當 30分 程度 밖에 所要되지않아 크게 省力化되어 有望하였으며, 收量面에서도 安定的인 結果를 보였다.
2. 지금까지 蓄積된 直播栽培 技術을 活用하여 晉州, 河東, 固城, 泗川 등 4地域에서 實證試驗을 遂行한 結果, '90 湛水表面直播을 했을경우에 出穗期는 機械移秧에 비해 7日 程度 늦었으나 安全出穗 限界期內에 出穗하였으며, 單位 面積當 粒數가 비슷하고 收量도 비슷한 傾向을 보였을 뿐만아니라, '91 트랙터附着 細條播種機에 의한 收量成績도 같은 傾向을 나타내어 一般農家 普及 可能性이 確認되었다

Table . Some agronomic characteristics and time used for sowing under different mechanical methods

| Treatments | Time for sowing (h/10a) | Emergence ratio (%) | Heading date | Culm length (cm) | No. of panicles /m ² | No. of spikelets/m ² (× 1,000) | Filled grain ratio (%) | Milled rice yield (kg/10a) |
|--------------------------------------|-------------------------|---------------------|--------------|------------------|---------------------------------|---|------------------------|----------------------------|
| 1. TMT | 1.6 | - | Aug. 14 | 70 | 371 | 27.3 | 89.9 | 440 |
| 2. DSH | 4.1 | 91 | Aug. 23 | 73 | 417 | 26.8 | 92.0 | 432 |
| 3. DSH : Cao ₃ coated | 1.5 | 93 | Aug. 22 | 76 | 397 | 27.0 | 83.2 | 424 |
| 4. DSM:None | - | 90 | Aug. 22 | 74 | 383 | 26.2 | 89.9 | 415 |
| 5. DSMS : 81 Cao ₃ coated | 1.7 | 92 | Aug. 22 | 71 | 400 | 26.4 | 78.6 | 398 |
| 6. DSMS:None | - | 81 | Aug. 23 | 72 | 403 | 26.7 | 81.9 | 409 |
| 7. DSN : Cao ₃ coated | 0.5 | 84 | Aug. 23 | 72 | 441 | 27.7 | 90.3 | 420 |
| 8. DSN:None | - | 82 | Aug. 23 | 72 | 426 | 27.1 | 87.3 | 427 |

※ TMT : Transplanting by machine transplanter
 DSH : Direct - surface - sowing by hand
 DSM : Direct sowing - in - soil by machine
 DSMS : Direct sowing - in - soil by transplanter attached spraying instrument of urea
 DSN : Direct sowing - in - soil by narrow - lined sowing machine

Table . Yield and yield components of direct-surface sown rice in demonstration paddy fields

| Region | Treatment | Heading date | Culm length (cm) | No. of panicles/m ² | No. of spikelets (× 1,000) | Filled grain ratio (g) | 1,000 grain weight (g) | Milled rice yields (kg/10a) | Yield index |
|------------------|-----------|--------------|------------------|--------------------------------|----------------------------|------------------------|------------------------|-----------------------------|-------------|
| Mean of 3 region | DS | Aug.18 | 72 | 443 | 31.2 | 92.0 | 21.6 | 433 | 98 |
| | MT | Aug.11 | 74 | 396 | 31.4 | 86.5 | 20.9 | 442 | 100 |
| Chinju | DS | Aug.16 | 75 | 428 | 29.3 | 91.8 | 20.9 | 405 | 99 |
| | MT | Aug.10 | 72 | 388 | 30.8 | 89.2 | 20.9 | 409 | 100 |
| Hadong | DS | Aug.17 | 71 | 467 | 31.6 | 92.0 | 21.9 | 430 | 96 |
| | MT | Aug.11 | 75 | 398 | 31.2 | 85.1 | 21.5 | 448 | 100 |
| Goseong | DS | Aug.20 | 68 | 434 | 32.7 | 92.3 | 22.1 | 465 | 99 |
| | MT | Aug.13 | 74 | 402 | 32.2 | 85.3 | 20.3 | 470 | 100 |

※ DS : Direct - surface sowing
 MT : Machine transplanting

Table . Yield and yield components of direct-sown rice in demonstration paddy fields

| Region | Treatment | Heading date | Culm length (cm) | No. of panicles /m ² | No. of spikelets (× 1,000) | Filled grain ratio (%) | 1,000 grain weight (g) | Milled rice yields (kg/10a) | Yield index |
|-------------------|-----------|--------------|------------------|---------------------------------|----------------------------|------------------------|------------------------|-----------------------------|-------------|
| Mean of 4 regions | DS | 8. 31 | 69.6 | 391 | 28.8 | 89.6 | 20.7 | 452 | 98 |
| | MT | 8. 25 | 75.1 | 344 | 27.6 | 92.3 | 21.3 | 462 | 100 |
| Chinju | DS | 8. 4 | 70.5 | 328 | 27.8 | 82.2 | 20.0 | 449 | 99 |
| | MT | 8. 29 | 74.1 | 312 | 27.4 | 88.1 | 20.3 | 454 | 100 |
| Hadong | DS | 8. 28 | 78.2 | 543 | 34.3 | 93.9 | 20.9 | 468 | 98 |
| | MT | 8. 23 | 79.3 | 442 | 30.1 | 94.2 | 21.2 | 471 | 100 |
| Goseong | DS | 8. 28 | 64.0 | 357 | 25.4 | 89.9 | 21.1 | 451 | 99 |
| | MT | 8. 23 | 74.1 | 307 | 24.7 | 93.5 | 22.3 | 455 | 100 |
| Sacheon | DS | 8. 1 | 67.7 | 336 | 27.6 | 92.3 | 20.7 | 438 | 95 |
| | MT | 8. 26 | 72.8 | 316 | 28.0 | 92.9 | 21.2 | 460 | 100 |

* DS : Direct-sowing-in-soil by narrow-lined sowing machine
 MT : Transplanting by machine transplanter with young seedlings