

# 친환경 대체에너지 식물 유체의 춘파 파종법 개발

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## Effect of Planting Date and Plant Density on Yield and Quality of Industrial Rapeseed in Spring Sowing

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### 연구목적

친환경 대체에너지 식물인 유체의 춘파 파종법을 개발하고자 함

### 재료 및 방법

가. 공시재료: 대중선 1호

나. 파종법: 50×10cm 점파, 조파

50×15cm 점파

50×20cm 조파

다. 파종기: 3월 5일, 비교구 9월 20일 묘상 파종, 3월 5일 이식

라. 시비량(kg/10a): 퇴비 800, N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O = 8-6-6

마. 시험구 배치법: 난파법 3반복

### 결과 및 고찰

In spring, to determine the optimal planting date and plant density of rapeseed in southern areas of Korea. Taiwan<sup>#1</sup> variety for spring sowing, the highest yielding variety was grown under five different planting date and plant density.

Yield components such as plant height, ear length, number of seeding stand per m<sup>2</sup>, number of per ear and seed set percentage were highest at the plots with Mar. 5 of planting date and 50/20cm drilling of plant density. Yield of seed, oil, gas and 1,000 grams weight and erucic acid content were highest at the Mar. 5 and planting date and 50/20cm drilling of plant density.

Judging from the results reported above, at optimum planting date and plant density of

rapeseed seemed too be Mar. 5 of planting date and 50/20cm plant density in spring sowing.

Table 1. Variation of agronomic characters of industrial rapeseed under different planting date and plant density.

| Treatment                            |                                     | Plant height (cm) | Ear length (cm) | No. of seedling stand per m <sup>2</sup> | No. of pods per ear | Seed set percentage (%) | Harvesting date |
|--------------------------------------|-------------------------------------|-------------------|-----------------|--|---------------------|-------------------------|-----------------|
| Planting date                        | Plant density                       |                   |                 |  |                     |                         |                 |
| Mar. 5                               | 50×10cm, droping                    | 88.0              | 37.9            | 28.8                                     | 29                  | 86                      | June 23         |
| Mar. 5                               | 50×15cm, droping                    | 87.3              | 39.0            | 19.3                                     | 29                  | 87                      | June 23         |
| Mar. 5                               | 50/10cm, drilling                   | 88.4              | 36.7            | 92.5                                     | 25                  | 84                      | June 23         |
| Mar. 5                               | 50/20cm, drilling                   | 90.7              | 40.7            | 142.9                                    | 29                  | 88                      | June 23         |
| Sep. 20 sowing, Mar. 5 transplanting | 12×12cm nursery, 50×30cm main field | 84.0              | 33.0            | 6.7                                      | 23                  | 86                      | June 10         |

Table 2. Analysis of variance for agronomic characters of industrial rapeseed under different planting date and plant density.

| SV           | df | Plant height (cm) | Ear length (cm) | Effective branches per m <sup>2</sup> | No. of seedling stand per m <sup>2</sup> | No. of pods per ear | Seed set percentage (%) | Harvesting date |
|--------------|----|-------------------|-----------------|---------------------------------------|--|---------------------|-------------------------|-----------------|
| Treatment    | 4  | 16.94**           | 8.81**          | 71.01**                               | 25.43**                                  | 8.92**              | 7.36**                  | 0.51**          |
| Error        | 8  | 0.20              | 0.10            | 0.89                                  | 0.14                                     | 0.17                | 0.24                    | 0.04            |
| C.V.(%)      |    | 1.87              | 0.87            | 4.83                                  | 1.53                                     | 0.95                | 0.68                    | 1.11            |
| L.S.D.(0.05) |    | 0.45              | 0.58            | 0.71                                  | 0.63                                     | 0.64                | 0.71                    | 0.28            |

\*\* Significance at L.S.D. 1%

\* Significance at L.S.D. 5%

Table 3. Variation of yield and content of erucic acid of industrial rapeseed under different planting date and plant density.

| Treatment                                    |  | Yield (kg/10a) |      |       | Weight(g)       | Content(%)  |
|--|--|----------------|------|-------|-----------------|-------------|
| Planting date                                | Plant density<br>(Width×Spacing)       | Seed           | Oil  | Gas   | 1,000<br>grains | Erucic acid |
| Mar. 5                                       | 50×10cm dropping                       | 143.8          | 57.5 | 86.3  | 2.38            | 53.6        |
| Mar. 5                                       | 50×15cm dropping                       | 117.3          | 48.1 | 69.2  | 2.27            | 54.7        |
| Mar. 5                                       | 50×10cm drilling                       | 152.0          | 63.8 | 88.2  | 2.56            | 55.1        |
| Mar. 5                                       | 50×20cm drilling                       | 184.7          | 79.4 | 105.3 | 2.56            | 56.8        |
| Sep. 20, sowing,<br>Mar. 5,<br>transplanting | 12×12cm nursery,<br>50×30cm main field | 131.1          | 56.4 | 74.7  | 2.70            | 53.4        |

Table 4. Analysis of variance for yield and content of erucic acid of industrial rapeseed under different planting date and plant density.

| SV            | df | Yield (kg/10a) |          |          | Weight (g)   | Content (%) |
|---------------|----|----------------|----------|----------|--------------|-------------|
|               |    | Seed           | Oil      | Gas      | 1,000 grains | Erucic acid |
| Treatment     | 4  | 283.71**       | 142.45** | 138.73** | 0.73**       | 6.37**      |
| Error         | 8  | 26.75          | 13.37    | 12.12    | 0.03         | 0.21        |
| C.V. (%)      |    | 3.85           | 1.87     | 1.61     | 3.17         | 0.63        |
| L.S.D. (0.05) |    | 11.54          | 0.57     | 0.45     | 0.28         | 0.54        |

\*\* Significance at L.S.D. 1%

\* Significance at L.S.D. 5%