Studies on the Soiling Forage Production for the Dairy Farm in the Taekwanryong Area

I. Experiments on the adaptability and sowing time of the forage rape 
(Brassica napus Subsp. oleifera) 
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Summary

This experiment was conducted as a part of the studies on the soiling forage production for the dairy farm in the Taekwanryong area, to investigate the adaptability of forage rape and determine the proper time of sowing in the Taekwanryong area.

Two cultivars of forage rape (Brassica napus Subsp. oleifera), Akela and Ramon, and a cultivar of oilseed rape, Halla, were sowed at intervals of about 10 days according to the treatment plan from the early August to the early October 1986 on the experimental field (815m above sea level) located Hoengke-ri Toam-myon Pyongchang-gun Kangwon-do, Korea.

The results obtained were summarized as follows:
1. In Taekwanryong area, Ramon showed apparently higher adaptability than Akela, while Halla the lowest adaptability among the three cultivars.
2. In Taekwanryong area, the forage rape for soiling should be sowed not later than late August, and for grazing not later than early September.
3. In Taekwanryong area, it is thought that the sowing and growing of the forage rape will be possible in summer season.
4. In Taekwanryong area, if the forage rape is grown as a second cropping on the fallow fields of cool highland summer vegetables, it is expected that land productivity will be raised.
5. In plant length measured at the harvesting time, 70 days after the sowing, Akela marked 49.3cm, 32.8 ~ 36.9cm, and 19.2cm in the plot sowed early August, middle and late August, and early September respectively; while Ramon was longer than Akela by average 3.2cm through those plots.
6. In fresh forage yield, harvested 70 days after the sowing, Akela recorded 47.73t/ha, 27.78 ~ 32.60t/ha, and 17.18t/ha in the plot sowed early August, middle and late August, and early September respectively; while Ramon yielded more than Akela by average 6.38t/ha through those plots.
7. In dry matter yield, harvested 70 days after the sowing, Akela and Ramon produced respectively 6.48t/ha and 7.11t/ha in the early August sowing plot, 4.50 ~ 4.82t/ha and 5.37 ~ 5.68t/ha in the middle and late August sowing plot, and 2.84t/ha and 3.52t/ha in the early September sowing plot.
8. The plot sowed middle September presented scanty yield with 3.05 ~ 4.82t/ha in fresh forage yield, and 0.52 ~ 0.86t/ha in dry matter yield; while the plots sowed later than the middle September marked only
trace in both fresh forage and dry matter yield.

9. Dry matter ratio measured at the harvesting time recorded 16.2% in Akela, 15.2% in Ramon and 14.2% in Halla. (Key words: rape, sowing time, forage production, alpine area, soiling crop, crop adaptability).

1. 緒論

大關嶺地域은 江原道 平昌郡 道岩面 一带の 高原地帶로서 酪農의 適地로 알려져 있다. 따라서 이 地域은 現在은 酪農牧場이 設置되어 있다. 그러나 이 地域의 牲畜飼養 情報에 비하여 造成된 牧草地의 面積이 아직 充分치 못하여 飼料供給이 促進되지 못한 청정이다. 

多幸히도 이 地域에는 業者, 養牛等 高地面 夏作物栽培耕種地가 많아 이들夏作物의 蔦洞에 後作으로서 同作용으로 夏作物用 油菜를 栽培하였다면 粗飼料供給에 크게 도움이 될 것이며, 土地의 生産性을 높이는 面서도 有益한 일이라고 생각된다.

本研究에서는 高地面 夏作物を 收穫하고 午 多蓮에 가을철에 飼草用 油菜を 播種한 경우 그 播種 時期의 上限과 下限을 알아보고, 大關嶺地域에서의 油菜의 適應性을 検証하고자 試験を 實施하였다.


Table 1. Monthly meteorological data during the experimental period in Taekwanryong area in 1986

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<tbody>
<tr>
<td>Atmospheric temp. (℃)</td>
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<td></td>
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<td>Max.</td>
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<td>23.9</td>
<td>19.4</td>
<td>20.6</td>
<td>16.0</td>
<td>15.4</td>
<td>12.4</td>
<td>10.3</td>
<td>8.1</td>
<td>7.1</td>
<td>6.7</td>
<td>2.3</td>
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<tr>
<td>Min.</td>
<td>15.7</td>
<td>16.4</td>
<td>14.2</td>
<td>12.9</td>
<td>7.8</td>
<td>5.8</td>
<td>6.3</td>
<td>2.3</td>
<td>-1.2</td>
<td>-0.9</td>
<td>-4.2</td>
<td>-6.9</td>
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<tr>
<td>Mean</td>
<td>19.5</td>
<td>20.1</td>
<td>16.7</td>
<td>16.2</td>
<td>12.2</td>
<td>10.8</td>
<td>9.4</td>
<td>6.2</td>
<td>3.6</td>
<td>3.3</td>
<td>1.2</td>
<td>-2.0</td>
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<td>Precipitation (mm)</td>
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<td>96.5</td>
<td>229.5</td>
<td>26.5</td>
<td>67.1</td>
<td>86.5</td>
<td>134.4</td>
<td>150.4</td>
<td>53.2</td>
<td>1.7</td>
<td>0.1</td>
<td>11.3</td>
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*Data originated from Taekwanryong Meteorological Station. 1) Early ten days of the month. 2) Middle ten days of the month.

Table 2. Soil analysis of the experimental field

<table>
<thead>
<tr>
<th>pH</th>
<th>Organic matter (%)</th>
<th>Available P₂O₅ (ppm)</th>
<th>Exchangeable (m. e./100g)</th>
<th>CEC (m. e./100g)</th>
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</thead>
<tbody>
<tr>
<td>6.1</td>
<td>5.7</td>
<td>424.6</td>
<td>0.36</td>
<td>2.5</td>
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