THE APPLICATION OF FOLIAR FERTILIZER FOR TEA CROPS AS ALTERNATIVE FERTILIZATION METHOD DURING DRY PERIOD CONDITION IN PAGILARAN TEA ESTATE

PENELITIAN PUPUK DAUN PADA TANAMAN TEH BERPADU ALTERNATIF CARA PEMUPUKAN SELAMA MUSIM KERING DI KEBUN PAGILARAN

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INTISARI

Suara perbanyakan dengan percohan lapangan telah dilakukan di kebun teh PT Pagilaran. Botang, untuk mengetahui keefektifan pupuk daun pada tanaman teh sebagai alternatif cara pemupukan dalam rangka mengatasi problem pelaksanaan pemupukan di musim kering.

Percohan dengan kuantitasan zencangat petak-tebang terdiri atas anak petak (sub plot) pemupukan daun dan daun tanpa (main plot) adalah klon teh yang terdiri atas 8 klon unggul (PS I, Cm 56, Cm 143, SKM 118, Kiara 8, TRI 2024, PGI, biji dan TRI 2025). Ujiannya dilakukan empat kali.


Hasil penelitian menunjukkan bahwa pupuk daun berpengaruh nyata pada kenaikan pupuk dan perubahan pupuk 47% pada panen II. 46% pada panen III. 8% pada panen IV. Dan untuk selanjutnya pada saat tanaman telah mengalami kekurangan air, pupuk daun tidak memberikan penguatan pada kenaikan hasil panen. Dari analisis petik diperoleh hasil bahwa pupuk daun tidak memberi manfaat untuk meningkatkan bobot total pupuk peesto.

Kata kunci: pupuk daun, teh, musim kering

ABSTRACT

A field experiment was done to study the effect of the application of foliar fertilizer on growth and yield of the in Pagilaran tea estate as an alternative method of applying fertilizer during the dry season that the ordinary fertilizer application cannot be done.

The field experimental design used was Split-Plot with four replications. The main-plot was tea clone. There are eight clones: PS I, Cm 56, Cm 143, SKM 118, Kiara 8, TRI 2024, PGI, biji dan TRI 2025. The plots were 100 sq.m.

Observations were done on shoots yield, plucked following the criterion of pure medium. The data were the total weight of shoots plucked, the percentage of peesto and running shoots (by weight). Plucking were done for seven (7) times starting at August 25, 1997 up to October 6, 1997.

The results of the experiment showed that foliar fertilizer (in this experiment the foliar fertilizer used was Bayflitan) increased the shoots yield significantly, particularly on the second, third and the fourth plucking by 47%, 16% and 8%, respectively, when the plants under mild stress. The fifth, sixth and seventh plucking showed no increase on yield due to the condition that plant had already under the severely drought stress. The shoots analysis indicated that the application of foliar fertilizer under the condition of drought stress was not able to improve the percentage of peesto shoots.

Key words: foliar fertilizer, tea, dry period

INTRODUCTION

Tea crops were usually grown under the site with the average temperature of 18°C-25°C, with the rainfall at the range of 2000 mm - 3000 mm per year. An severe rainfall distribution without marked seasonally is ideal (Watson, 1966). An acid soil, could be podzolic, is the important requirement with pH 4.5-5.5. Soil should be deep, permeable and well drained.

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The concentration was 2.0 cm solution and the dose applied was 700 l solution/h. (1.400 l Bayfolantha) for once spraying. The spraying was done at the intervals of two weeks.

The first application of the fertilizer was conducted on August 21, 1997 when the crops were still under the normal conditions (as noted that the rainfall in July 1997 was 296 mm, while in August was 20 mm). The second application was on September 9, 1997 at the time the crops were under mild water stress condition (as noted that there was no rainfall in September, 1997) and the third (last) application was on September 21, 1997 when crops were already under the seriously water deficit condition.

The data observed were total shoots yield and the percentage weights of either pecco or burung shoots. The criteria of shoots plucked were pure medium, consisted of: P > 30; P+P2O5 > 1; B+2m and B+1. Plucking were done for seven (7) times, with the intervals of seven (7) days, started from August 25, 1997 up to October 6, 1997. Total shoots yield was presented in grams and proportion of pecco or burung were presented in per cent (%).

The data obtained were analyzed for variance analysis based on Split-Plot Design with four replications. For knowing the significant differences among treatments, Duncan's New Multiple Range Test (x=0.05) were used.

RESULT AND DISCUSSIONS
The data of the average of shoots yield were presented on table 1. It showed that the application of foliar fertilizer could significantly increase the shoots yield particularly for the clones (Cin 56, P5, 1, SXM 118, Kiera 8, PGL biji and TRI 2025, 54%, 32%, 3%, 30%, 22% and 4%, respectively).

Based on the plucking time, the application of foliar fertilizer only improved shoots yield when the crops were still under normal or mild stress conditions. Furthermore under the seriously water stress condition the fertilizer had no effect on yield (Figure 1).

The percentage weights of pecco and burung shoots were presented on table 2. It was showed that the application of foliar fertilizer under the conditions of water (drought) stress did not improve the quality of shoots yield as indicated by percentage of pecco shoots did not increased.

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Tabel 1. The average weight of shoots yield (in grams) of tea applied and not applied with foliar during the dry periods conditions in Pagirangan tea estate

<table>
<thead>
<tr>
<th>No.</th>
<th>Clones</th>
<th>Not Applied</th>
<th>Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PS 1</td>
<td>3460.50 bcd</td>
<td>4265.25 bcd</td>
</tr>
<tr>
<td>2</td>
<td>Cis 56</td>
<td>1802.50 d</td>
<td>2341.25 cd</td>
</tr>
<tr>
<td>3</td>
<td>Cis 143</td>
<td>9168.00 a</td>
<td>9388.78 ab</td>
</tr>
<tr>
<td>4</td>
<td>SKM 118</td>
<td>4638.25 bcd</td>
<td>5966.25 abc</td>
</tr>
<tr>
<td>5</td>
<td>Kiara 8</td>
<td>3837.50 bcd</td>
<td>5017.50 bcd</td>
</tr>
<tr>
<td>6</td>
<td>TRI 2024</td>
<td>7473.75 ab</td>
<td>7082.50 ab</td>
</tr>
<tr>
<td>7</td>
<td>PGL biji</td>
<td>4847.50 bcd</td>
<td>5930.75 abc</td>
</tr>
<tr>
<td>8</td>
<td>TRI 2025</td>
<td>9135.00 a</td>
<td>9530.00 a</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>4947.50 B</td>
<td>6229.06 A</td>
</tr>
</tbody>
</table>

Add Values in columns or rows followed by the same letters are not significantly different (DMRRR 5%)

Figure 1. The total of shoots yield of tea plucked weekly starting from August 25, 1997 up to Oct. 6, 1997 from 8 clones applied and not applied with foliar fertilizer

Table 2. The average percentage of pecco and baturir shoot weight of tea from 8 improved clones applied and not applied with foliar fertilizer

<table>
<thead>
<tr>
<th>No.</th>
<th>Clones</th>
<th>Pecco shoots</th>
<th>Baturir shoots</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Not applied</td>
<td>Applied</td>
</tr>
<tr>
<td>1</td>
<td>PS 1</td>
<td>62.67 a</td>
<td>67.88 a</td>
</tr>
<tr>
<td>2</td>
<td>Cis 36</td>
<td>34.80 b</td>
<td>31.60 b</td>
</tr>
<tr>
<td>3</td>
<td>Cis 143</td>
<td>38.75 b</td>
<td>31.51 b</td>
</tr>
<tr>
<td>4</td>
<td>SKM 118</td>
<td>32.10 b</td>
<td>29.53 b</td>
</tr>
<tr>
<td>5</td>
<td>Kiara 8</td>
<td>28.47 b</td>
<td>29.10 b</td>
</tr>
<tr>
<td>6</td>
<td>TRI 2024</td>
<td>29.35 b</td>
<td>30.24 b</td>
</tr>
<tr>
<td>7</td>
<td>PGL biji</td>
<td>39.26 b</td>
<td>38.10 b</td>
</tr>
<tr>
<td>8</td>
<td>TRI 2025</td>
<td>30.31 b</td>
<td>29.10 b</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>36.96 A</td>
<td>35.88 A</td>
</tr>
</tbody>
</table>

It was shown that under the condition of drought stress the physiological activities in plant were inhibited due to the lack target, transportation activities, metabolic activities, and finally affecting the growth rate of shoots yielding only baturir (terminated shoots). As stated by Krammer (1969) that plants require water for nutrients and assimilates transportation, hydrolys, transportation, enzymatic activities of water required varied depending on kind of plants, stages of growth and the environmental conditions of the plants.

CONCLUSION

Based on the experiment, it could be concluded that the application of Julian fertilizer could increase significantly the shoots yield of tea under the condition of normal and mild drought stress, but it did not affect the yield when applied under the condition of seriously drought stress.

The application of foliar fertilizer did not improve the quality of shoots in term of the percentage pecco and baturir shoots.

LITERATURE CITED


