

Table ( 4 ): Effect of blue-green algae and/or Azospirillum in the presence of urea -N on the 1000-grain weight of rice (g).

| Urea-N<br>kg/feddan | Cent-<br>rol | BGA (1) | BGA (2) | Azo.  | BGA (1)<br>+<br>Azo. | BGA (2)<br>+<br>Azo. | BGA (1)<br>+<br>BGA (2)<br>+<br>Azo. | Mean  |
|---------------------|--------------|---------|---------|-------|----------------------|----------------------|--------------------------------------|-------|
| 0                   | 23.06        | 20.17   | 22.20   | 21.77 | 22.45                | 21.52                | 20.37                                | 21.72 |
| 20                  | 21.37        | 22.95   | 21.65   | 22.25 | 21.30                | 21.90                | 22.32                                | 21.96 |
| 40                  | 21.16        | 21.12   | 23.10   | 21.22 | 21.20                | 20.80                | 21.12                                | 21.39 |
| Mean                | 21.86        | 21.41   | 22.32   | 21.75 | 21.41                | 21.41                | 21.44                                | 21.69 |

L.S.D.

0.05 0.01

Bio- fertilizer treatments

"A"

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Nitrogen fertilization treatments

"B"

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Interaction between bio- and

mineral fertilization

"AB"

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\* = Significant,

\*\* = Highly significant, ns = Non-significant

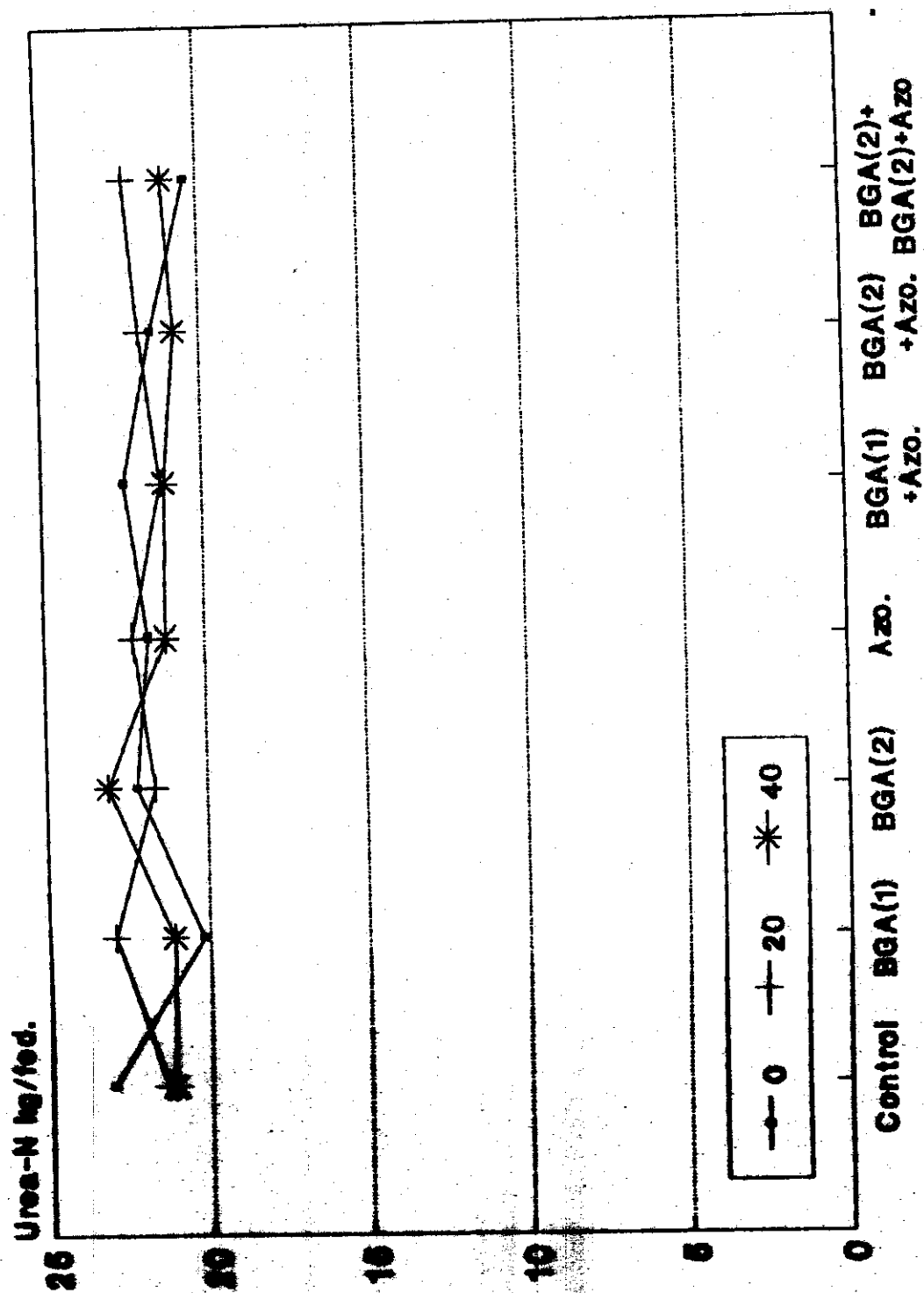


Fig ( ) : Effect of blue-green algae and/or Azospirillum in the presence of urea-N on the 1000 - grain weight of rice (g).

grain weight which was not affected. In addition, Yoshida (1981) reported that 1000- grain weight is a stable varietal character because the grain size is rigidly controlled by the size of the hull. Hence, the size of the grain can not grow more than that permitted by the hull.

3- Effect of algal and/or bacterial inoculation on dry weight of shoots :

The inoculation with algae and/or bacteria in absence of nitrogen fertilizer had a negative effect on dry weight of rice shoots (rice straw and grain yield) before harvesting stage (table 5 and Fig. 7). The present data showed that the highest amount of dry weight was observed in the treatment supplemented with imported algal strain BGA<sub>(2)</sub> and Azospirillum brasilense where the shoots dry weight was 66.85 g.

The addition of urea-N at two levels 20 and 40 kg N/ fed. gave a highly significant effect on dry weight of shoots, either alone as a control or in combination with algae and/or bacteria. Such treatments led to an increase in the amount of dry weight of shoots, the percentage of increase over control amounted to 35.33 % and 28.25 %, respectively.

These findings are confirmed by Watanabe (1973), Alimagne and Yoshida, (1975), Haddy et al. (1986), Gazal

Table ( 3 ): Effect of blue-green algae and/or Azospirillum in the presence of urea- N on the dry weight (g) of rice plants.

| Urea-N<br>kg/feddan | Cont-<br>fol | BGA (1) |         | BGA (2) |         | BGA (1) +<br>Azo. |       | BGA (2) +<br>Azo. |         | Mean | % |
|---------------------|--------------|---------|---------|---------|---------|-------------------|-------|-------------------|---------|------|---|
|                     |              | BGA (1) | BGA (2) | BGA (1) | BGA (2) | Azo.              | Azo.  | Azo.              | Azo.    |      |   |
| 0                   | 57.07        | 57.70   | 55.85   | 52.20   | 48.40   | 66.85             | 60.87 | 56.99             | 0.00    |      |   |
| 10                  | 73.09        | 84.30   | 67.50   | 67.30   | 72.65   | 77.12             | 64.10 | 72.37             | 26.98** |      |   |
| 40                  | 63.07        | 89.75   | 71.30   | 78.12   | 90.05   | 76.37             | 52.00 | 73.09             | 28.25** |      |   |
| Mean                | 64.59        | 74.25   | 64.88   | 65.87   | 70.36   | 73.44             | 58.99 | 67.48             |         |      |   |

L.S.D.

Bio- fertilizer treatments

Nitrogen fertilization treatments

Interaction between bio- and

mineral fertilization

\* = Significant,      \*\* = Highly significant,      ns = Non-significant

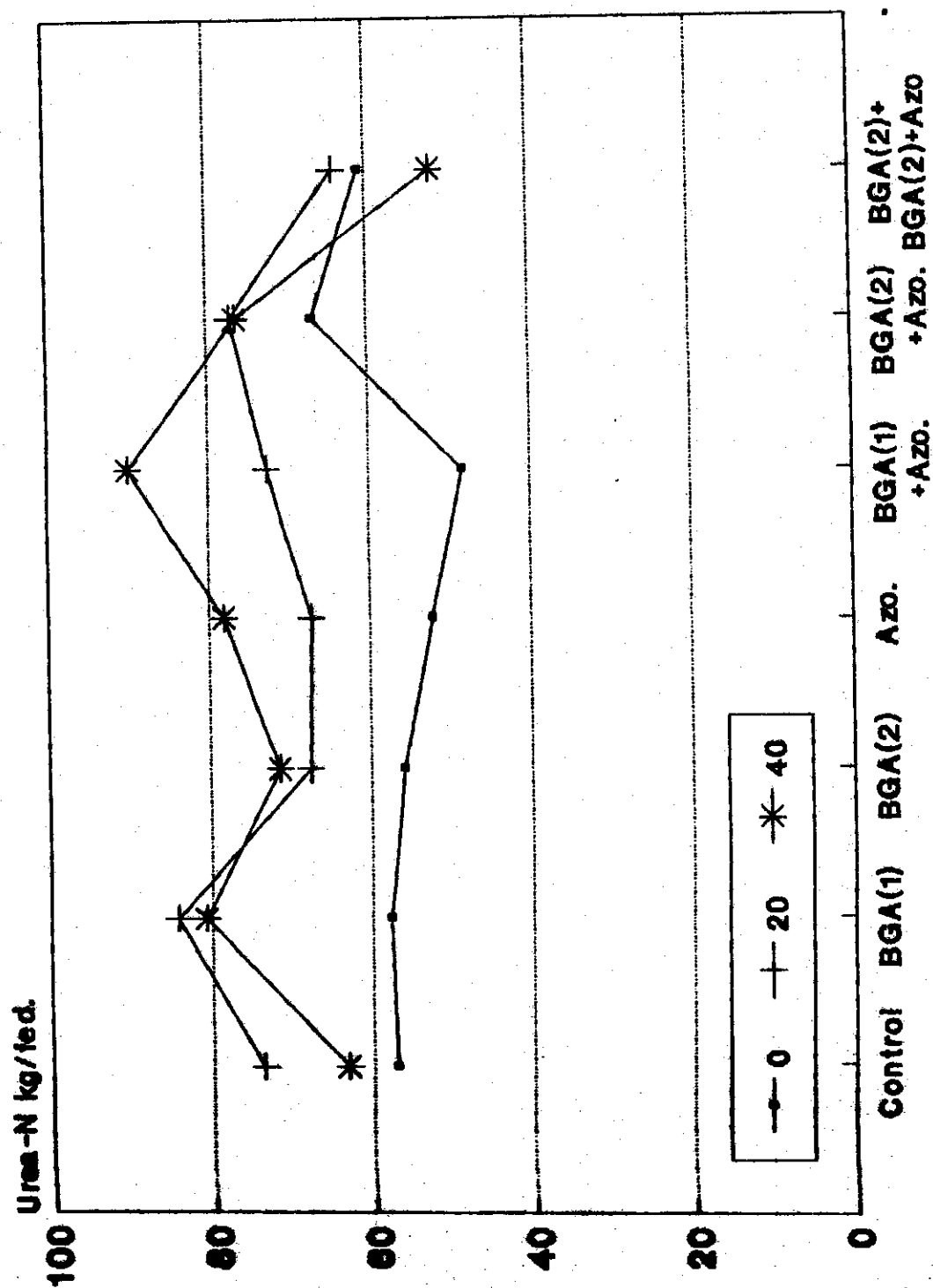


Fig ( ) : Effect of blue-green algae and/or Azospirillum in the presence of urea-N on the dry weight of rice (g).