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ONLINE ISSN : 1349-1008

PRINT ISSN : 1343-943X

Plant Production Science

Vol. 6 (2003) , No. 3 185-189



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Evaluation of the SPAD Value in Faba Bean (*Vicia faba* L.) Leaves in Relation to Different Fertilizer Applications

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(Received: September 30, 2002)

Abstract: The correlations of the reading of a portable chlorophyll meter (SPAD-502) with the chlorophyll and N contents of leaves of two faba bean (*Vicia faba* L.) cultivars, Japanese (Ryousai-issun) and Egyptian (Cairo 241), were examined. The SPAD readings positively correlated ($p < 0.01$) with the chlorophyll contents and the r^2 values were 0.99 and 1.00 for Ryousai-issun and Cairo 241, respectively. A close linear relationship ($p < 0.001$) was observed between SPAD reading and total leaf N content at the pod development stage of faba bean plants with $r^2 = 0.88$ and 0.99 for Ryousai-issun and Cairo 241, respectively. The SPAD reading was the highest in the 2nd to 4th leaves counted from the top (the youngest fully expanded leaves). The changes in leaf chlorophyll content of both cultivars from 3 weeks after transplanting to the ripening stage showed an incomplete “M” type curve. SPAD readings were significantly higher in Ryousai-issun than in Cairo 241 throughout the growth season. Organic fertilizers application improved faba bean plant growth. These results suggest that the SPAD-502 chlorophyll meter can be used to measure chlorophyll and nitrogen contents of faba bean leaves for quick screening faba bean genotypes.

Keywords: [Chlorophyll](#), [Faba bean](#), [Nitrogen](#), [Nutrition](#), [Organic materials](#), [SPAD-502 meter](#)

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To cite this article:

Magdi Abdelhamid, Takatsugu Horiuchi and Shinya Oba: "Evaluation of the SPAD Value in Faba Bean (*Vicia faba* L.) Leaves in Relation to Different Fertilizer Applications". Plant Production Science, Vol. **6**, pp.185-189 (2003) .

doi:10.1626/pps.6.185

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