

Author:  [ADVANCED](#)

Volume Page

Keyword:   [TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1349-1008

PRINT ISSN : 1343-943X

## Plant Production Science

Vol. 8 (2005) , No. 4 405-411

[\[PDF \(532K\)\]](#) [\[References\]](#)

### Characteristics of Nodulation and Nitrogen Fixation in the Improved Supernodulating Soybean (*Glycine max* L. Merr.) Cultivar 'Sakukei 4'

[Motoki Takahashi](#)<sup>1)</sup>, [Shinji Shimada](#)<sup>1)</sup>, [Norikazu Nakayama](#)<sup>1)</sup> and [Joji Arihara](#)<sup>1)</sup>

1) National Institute of Crop Science, National Agriculture and Bio-oriented Research Organization

(Received: September 3, 2004)

**Abstract:** Supernodulating soybean lines have more than several times as many nodules as normal cultivars. They are expected to have high nitrogen-fixing ability and enhanced productivity, but their yields have been inferior to those of normal genotypes. We have recently developed a new supernodulating cultivar, 'Sakukei 4' (formerly 'En-b0-1-2', presently 'Kanto 100'), with improved growth and yield. The objective of the present study was to identify the characteristics of the nodulation and nitrogen-fixing ability of Sakukei 4. In pot trials, the nodule number of Sakukei 4 was 8.3 times that of a normal cultivar, 'Enrei', and the nodule weight per plant was 2.3 to 2.8 times the value for Enrei. The acetylene reduction activity per plant in Sakukei 4 was higher than that in Enrei and conventional supernodulating genotypes, especially during the late growth stage. Compared with conventional supernodulating lines, the improved vegetative growth in shoots and roots of Sakukei 4, especially after flowering, probably enhanced its nitrogen-fixing ability per plant. We consider that its high nitrogen-fixing ability at the seed-filling stage, would help increase its yield in fields with low nitrogen fertility.

**Keywords:** [Glycine max L. Merr.](#), [Growth](#), [Nitrogen fixation](#), [Root nodule](#), [Soybean](#), [Supernodulation](#)



[\[PDF \(532K\)\]](#) [\[References\]](#)

Download Meta of Article [\[Help\]](#)

[RIS](#)

[BibTeX](#)

To cite this article:

Motoki Takahashi, Shinji Shimada, Norikazu Nakayama and Joji Arihara: "Characteristics of Nodulation and Nitrogen Fixation in the Improved Supernodulating Soybean (*Glycine max* L. Merr.) Cultivar 'Sakukei 4'". *Plant Production Science*, Vol. **8**, pp.405-411 (2005) .

---

doi:10.1626/pp.8.405

JOI JST.JSTAGE/pp.8.405

Copyright (c) 2005 by The Crop Science Society of Japan

---



---

[Japan Science and Technology Information Aggregator, Electronic](#)

