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Author: [ADVANCED](#) | Volume Page

Keyword: |



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

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[\[Image PDF \(597K\)\]](#) [\[References\]](#)

Responses of a Supernodulating Soybean Genotype, Sakukei 4 to Nitrogen Fertilizer

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Abstract: The supernodulating soybean genotype Sakukei 4 is potentially high-yielding. We characterized its leaf nitrogen (N) content, photosynthesis and growth at different developmental stages and under different dosages and types of N fertilizer, and compared it with its parental cultivar Enrei and the non-nodulating line En1282. At the pod-expansion and seed-filling stages, the N contents per leaf dry weight and per leaf area, and apparent photosynthetic rates (AP) were higher in Sakukei 4 than in the normal and the non-nodulating genotypes. The nodule activity per plant was also higher in Sakukei 4 than in Enrei during the reproductive stage. These traits varied less with the growing condition (field- or pot-grown) and dose or type of N fertilizer applied in Sakukei 4 than in the other genotypes. The superior ability of Sakukei 4 to maintain high leaf N and AP, however, did not enhance its growth performance, which tended to be inferior to that of Enrei. Further studies are needed to define the cultivation conditions optimal for an exploitation of the favorable traits of Sakukei 4.

Keywords: [Glycine max](#), [Leaf nitrogen](#), [Nitrogen response](#), [Photosynthesis](#), [Soybean](#), [Supernodulation](#)



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