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ONLINE ISSN: 1349-0990

PRINT ISSN: 0011-1848

Japanese journal of crop science

Vol.64 , No.1(1995)pp.115-120

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Interspecific Differences in Growth and Nitrogen Uptake among Crotalaria species

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[Received: 1994/06/26]

[Published: 1995/03/05]

[Released: 2008/02/14]

Abstract:

The interspecific differences in germination, root nodule formation, dry matter production and nitrogen uptake were evaluated among *Crotalaria* species for the introduction as new green manure legumes. The germination progressed smoothly in *C. juncea* and *C. spectabilis*, but physical scarification was necessary in *C. pallida*. In the field experiment, *C. juncea* had a high dry weight and a great nitrogen content at the early growing stage, but a drastic defoliation and a high C-N ratio were found at the late growing stage. *C. pallida* grew slowly at the early stage, but a high nitrogen content and an adequate C-N ratio for decomposition were found at the late growing stage. *C. spectabilis* showed intermediate traits in dry matter production and nitrogen uptake. In the root-box experiment, the distribution patterns of root systems and root nodules varied among the three species. *C. juncea* had greater root growth and nodulation compared with two other species at 35 days after sowing. When the three species are introduced to various cropping systems, these traits should be considered for choice as green manures.

Keywords:

C-N ratio, *Crotalaria*, Dry matter production, Green manure crop, Nitrogen fixation, Nitrogen uptake

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