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ONLINE ISSN : 1883-2261

PRINT ISSN : 0389-1763

## Japanese Journal of Farm Work Research

Vol. 42 (2007) , No. 2 pp.111-121

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### Biomass Production and Weed Control in Some Winter Cover Crops in Hokuriku District

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(Received May 25, 2006)

(Accepted May 2, 2007)

#### Abstract

For the purpose of introduction cover crops into summer crop production in the Hokuriku district, grass (wheat, barley, rye and bristle oat), legume (hairy vetch, HV ; common vetch, CV ; milk vetch, MV ; crimson clover, CC) and Brassica (rape) cover crops were sown in October of 1998 and 1999, and above-ground biomass (AGB) in the following spring and weed control effect were observed at the University Farm of Niigata University. A large amount of AGB (646kg·DW and 591kg·DW per 10a in rye and in HV, respectively) was provided as organic matter to the field. In particular, nitrogen content of HV was 4.2% (DW) and approximately 24kg/10a organic N was supplied to the field grown HV. After mowing, although HV residue covered the ground surface completely, ground surface cover by residue of other cover crops was insufficient. Suckering occurred from the stubble of rye, and living mulch was formed by seed germination on the ground surface in wheat, barley and CC. These cover crops should be mowed earlier for residue mulch formation. There was little difference in AGB between 1999 and 2000 ; however, HV-AGB obtained in 2000 was reduced compared to that in 1999 because of long period of snow cover in 2000. Emergence and growth of weed in the grass residue mulch were smaller or the same compared with the tilled field for control. In the HV residue mulch field, weed emergence was smaller but final weed DW was larger than the tilled field and grass mulch fields. DW of

lettuce grown in HV, CV and bristle oat mulch was larger than those in tilled or other mulch fields. From these observations, HV and rye will be promising cover crops in the Hokuriku district because of the large AGB production. However, it is necessary to establish cropping techniques so that seedlings can overwinter in the snow cover region in HV and suckering will be suppressed after mowing in rye.

**Key words**

[Cover crops](#), [Above-ground biomass](#), [Plant residue mulch](#), [Weed control](#), [Hokuriku district \(snow cover region\)](#)

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To cite this article:

Hajime ARAKI, Yoshifumi HATANO, Sakae HORIMOTO, Yoshiharu FUJII and Michiaki ITO (2007): Biomass Production and Weed Control in Some Winter Cover Crops in Hokuriku District . Japanese Journal of Farm Work Research 42: 2 111-121 .

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doi:10.4035/jsfwr.42.111

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