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Shortening of the Weed-Free Maintenance Period for Soybean Production with Wheat as a Living Mulch

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Abstract

The effectiveness of the use of living mulch for shortening the weed-free maintenance period for soybean production was examined for the weed species black nightshade, barnyard grass, *Persicaria lapathifolia* (L.) S.F. Gray and common purslane. Living mulch greatly reduced both plant height and maximum shoot length of all weed species. The weed-free maintenance period was calculated from the rate of increase in plant height based on the assumption that relative illuminance on the ground reaches less than 10% on July 30 and August 5 and that plant height at that time point was less than 350mm. The results of calculation showed that using living mulch cropping system reduced the periods for weed-free maintenance by about 15 days for barnyard grass and by about 20 days for *Persicaria lapathifolia* (L.) S.F. Gray compared to the periods in conventional cropping system. The same calculation for black nightshade showed that the period for weed-free maintenance was reduced by about 35 days compared with that in conventional cropping. However, the results of field investigation of suppression of weed growth and production of fruit, which is the source of stain of soybean grain, showed that the actual reduction of the weed-free maintenance period for black nightshade is thought to be about 20 days. The growth of common purslane was almost completely suppressed by the use of living mulch. The results suggest that the weed-free maintenance period for soybean production using living mulch in Hokkaido is less than 30 days.

Key words

[barnyard grass](#), [black nightshade](#), [common purslane](#), [living mulch](#), [Persicaria lapathifolia](#)

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