

[09]九州高原地帯における荒廃草地の植生回復：特に追播草の定着促進

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Summary

The present study deals with the general remarks on the establishment of the direct seed-drilling which may recover wasted pastures in the highland area of Kyushu.

The pasture management from the viewpoint of its maintenance and utilization is indispensable to the sustainable production of livestock from pastures. In pastures in the highland area of Kyushu which belongs to the Asian monsoon zone, the persistence of temperate pastures is limited to short years on account of unfavorable conditions such as high temperature and large rainfall in summer and the difficulty in pasture management.

The author investigated the vegetation changes that took place in the pasture management related to weather, grazing and fertilization factors. This resulted, however, in wasted pastures owing to overgrazing and fertilizing in summer, where bare grounds appeared and were occupied by various weeds and there was a reduction of main valuable grass species. Orchardgrass (*Dactylis glomerata* L.) is considered a main grass in the highland area of Kyushu. Then, to recover vegetation simply in wasted pastures, I made attempts at overseeding and weed control which were considered of importance to the pasture management.

Moreover, as the overseeding was not easy, some basic experiments were conducted to investigate the effects of various factors on the establishment of seed drilled into pasture sods.

First, to promote the germination rate of seeds, the following two experiments were conducted. (1) Effects of soaking or air-drying pretreatment and sprinkling the seed bed on the early germination of orchardgrass. It was suggested that seed soaking or air-drying pretreatment promoted the early germination rate of the seed in case of low-moisture soil. (2) Effects of three water holding materials (vermiculite, *Sphagnum*, synthetic resin) added to the surface of low-moisture volcanic ash soil on the soil water content and early germination of orchardgrass. It was suggested that adding water holding materials to the surface of low-moisture volcanic ash soil promoted the germination rate of the seed directly drilled into deteriorated pasture sods by improving soil water condition.

Second, to promote the establishment of the seedlings of orchardgrass oversown into the bare ground, orchardgrass sod or Kentucky bluegrass sod, effects of seeding time (Aug. 1, Sep.1, Oct.1), nitrogenous fertilization (5kgN/10a of fast-release fertilizer, 5kgN/10a or 10kgN/10a of slow-release fertilizer) and post-sowing trimming frequency (none, once, twice) were conducted. It was suggested that (1) seeding time should be chosen according to the vegetation condition of pastures, (2) the form and amount of fertilizer applied were dependent on the seeding time, and (3) trimming the existent sward around orchardgrass seedlings should be done to give favorable light condition.

Third, effects of time and frequency of cutting on stem density and plant length of orchardgrass which had been drilled in the previous year into the bare ground, orchardgrass sod and Kentucky bluegrass sod. It was suggested that cutting at the early heading stage in the next spring was important to increase stem density and plant length.

Results of the present study suggested that overseeding in October with the application of slow-release fertilizer at 5kgN/10a level followed by twice post-sowing trimming and cutting the grass at early heading stage in the next spring were most effective for the establishment of orchardgrass drilled into tussock-formed orchardgrass sward.