

Sammenligning af manuel og automatisk vanding af karforsøg med rajgræs og byg ved to kvælstofniveauer

Comparison of manual and automatic irrigation of pot experiments with ryegrass and barley

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Resumé

I karforsøg blev der foretaget en sammenligning af manuel og automatisk vanding af rajgræs og byg tilført to mængder kvælstof. Ved den manuelle vanding vejedes karrene dagligt og tilførtes vand svarende til 70 pct. af jordens markkapacitet. Ved den automatiske vanding tilførtes karrene dagligt overskud af vand fra et reservoir placeret under det enkelte kar. Overskydende vand førtes tilbage til reservoiret. Ved tilførsel af den mindste kvælstofmængde til rajgræs var tørstofudbyttet og kvælstofoptagelsen i de første slæt større

for automatisk vanding end for manuel vanding, men det samlede udbytte af alle slæt – i alt 4 – var størst for manuel vanding. Ved tilførsel af den største kvælstofmængde var både det samlede tørstofudbytte og tørstofudbyttet ved de enkelte slæt samt kvælstofoptagelsen lige så stor ved automatisk vanding som ved manuel vanding. I forsøget med byg var tørstofudbyttet størst for automatisk vanding ved begge kvælstofmængder. Vandingsmåden havde ingen nævneværdig indflydelse på kvælstofoptagelsen.

Nøgleord: Vanding, karforsøg, rajgræs, byg, kvælstof.

Summary

In experiments with increasing amounts of nitrogen fertilizers to rye grass and barley a manual and an automatic system for irrigation of pot experiments were compared. Using the manual method the pots were supplied with water daily to 70 per cent of the water-holding capacity of the soil using a balance. The automatic method was based on a technique by which compressed air pumps water from a water reservoir to the surface of the soil. A float inside the reservoir secures that the water in the reservoir can not move back to the pipeline for water supply. The experiment with rye grass was carried out at 2.5 and 8.5 g N

per pot. At the lowest level the highest yield of dry matter and the largest absorption of nitrogen was obtained by automatic irrigation in the first and second cuts. However, the total yields of four cuts were highest after manual irrigation. At the highest nitrogen level the largest yield of dry matter was obtained where automatic irrigation was used. The experiment with barley was carried out at 1 and 4 g of N per pot. At the lowest level the yield of dry matter was almost equal for the two irrigation methods. At the highest nitrogen level the yield was highest for automatic irrigation. The nitrogen absorption was nearly identical for the two irrigation methods at both nitrogen levels.

Key words: Irrigation, pot experiments, rye grass, barley, nitrogen.

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