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Studies on effect of intercropping forage grasses in Young forestries on the hilly areas in South China

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Key words : hilly areas ,intergration between forage grass and forestry ,young forestry

Introduction The hilly areas in South China has 28 million ha of cultivated lands and 90 million ha of forestry lands with 25-30million of which for young timber tree and economic ones .The author has done some investigations and trials for bringing the affections of forage grasses into full play .

Materials and methods Using forage grasses affection of water and soil conservation to control soil erosion .Promoting trees growth by grasses' regulation of temperatures and moistures and improvement of soil fertility .Increasing farmers' income by animal farming with the forage grasses used as feed .

Results and discussion It is indicated by mentioned above that intercropping forage grass such as *Dactylis glomerata* in the two young fruit forestries will reach the four objectives in a short period : (1) to control water and soil loss .It is because the crowded and ground-touched grass populations effectively decentralize energy of the raindrops ,which controls topsoil's closure , promotes rains' permeation into the ground and cuts down the run-off so as to largely decrease the reservoirs' deposits ; (2) to actively regulate temperature and moisture of the topsoils .It is because the forage can cover the ground quickly and with a large intensity which makes them free from direct and strong sunshines so as to decrease the temperature and water evaporation .As all of the functions create an available condition for trees to effectively uptake and utilize waters and fertilizers so that promote the trees' growth ; (3) to improve soil fertility .After cutting the fresh grasses for animals' feed the residuals and in addition , the fallen tree branches and leaves will be rotted in the ground and become organic fertilizers by micro organism's activity .In my trial ,organic matters in the tested areas rised to 4.5% from 1% before planting the grasses ; (4) to increase feeds .In my trials , the farmers got more animal products and incomes .Will intercropping the grasses in the young tree forestries produce light or heat and water or fertilizer's competitions between the trees and the grasses ? No ,it won't .It was indicated by the author's observation that the trees and grasses grown together interacted very well and promoted growth each other .Leaves of both the two fruit trees fell in autumn while the grass ,that is ,*Dactylis glomerata* was growing vigorously at the season .When winter came the grass had grown up and covered the ground which protected the trees from being freezed .When in summer the newly grown branches and leaves protected the grass from strong sunshines .And the author observed that 90-95% of the forage's root system distributed in topsoils at about 20cm while 70-80% of that of the tree's anchors in subsoils below 20cm ,which made them able to absorb waters and fertilizers in difficult soil layers respectively .Besides ,plant height of these forage grasses was generally about 100cm but that of the trees about several hundred cm which made the former mainly utilize heat and light in the soil surface and the latter in higher space respectively .At last it should be pointed out that to get success in integration between forestry and forage grass it must choose grass and tree varieties ,generally those deciduous trees or brushes ,adaptable to the local condition ,otherwise the expected objectives may not be reached .

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