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Development of no-till corn cropping system for bio-energy usage in drained paddy field

Division of Plant Physiology & Ecology, National Institute of Crop Science, RDA

In recent, bio-energy cropping is booming for replacing fuel energy. Corn is one of the most highest biomass producing crops and we are trying to develop low-input corn cropping system in drained paddy field. Our hypotheses are that 1) reduced tillage might be increase water/air penetration in the soil; 2) straw mulching could be reduced occurrence, growth and biomass of weeds; 3) high seeding density could increase total biomass of the corn even delayed seeding time by the pre-crop growing. So, mulching method (soil covering; straw mulching), seeding time (May early; May late), and seeding density (conventional; two times high density) were evaluated in drained paddy field. We got several important results: 1) soil covering was better than straw mulching in the points of initial plant growth and seedling establishment percent(%), 2) high seeding density could be replace a little delayed seeding time, 3) straw mulching might be possible if conserved soil moisture during the germination time. In final, no-till, corn-vetch/other crops cropping systems might be possible for bio-energy crop utilization with minimum cost/labor input of tillage and seeding.

*Young-Son Cho, 82-031-290-6687, ycho@rda.go.kr, choyoungson@hanmail.net