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EFFECT OF WATER HYACINTH MULCH ON SOIL TEMPERATURE, WATER CONTENT AND MAIZE YIELD (*Zea mays* L.) IN SOUTHEAST CHINA

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Abstract

Maize (*Zea mays* L.) is considered one of the most popular grain crops in China. Among various agricultural technologies, soil mulching is the one that is used more and more in recent years. Mulches influence the soil temperature, retard the loss of soil water, and limit the growth of weeds; and these are important factors in the production of maize. A two-year field experiment was carried out at Shanghai, in southeast of China, in order to evaluate the effects of water hyacinth residues as mulch on soil water content, soil temperature and grain yield of a maize crop. Compared to no mulching, higher moisture content was always observed in the 0-90 cm soil layer of the mulched plots, and mean soil temperature were higher by 0.7-1.1°C at 5 cm depth and by 0.4-0.7°C at 10 cm depth with mulching in both years. The maize grown in soil mulched with water hyacinth residues produced greater grain yields than the one grown under no-mulch condition (on average 19.6 % and 17.4 % in 2008 and 2009, respectively). For stover, the mulched has 131.9 % and 110.3 % as much dry weight as the non-mulched in 2008 and 2009, respectively. The results showed that the application of water hyacinth mulch is an effective way to improve soil water conditions, temperature and maize yield. Mulching with water hyacinth residue may therefore be an important technique for not only maize production in south-east area of China, but also for safe disposal of such residue.

Key words: maize grain yield, residue mulch, soil water content, soil temperature, water hyacinth

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