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可降解地膜的降解性能及对土壤温度、水分和玉米生长的影响

Degradation property of degradable film and its effect on soil temperature and moisture and maize growth

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英文关键词: [films](#) [degradable](#) [soil moisture](#) [soil temperature](#) [maize](#) [growth](#)

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中文摘要:

针对生产中普通农用塑料地膜导致农田土壤污染的现状,进行了不同厚度可降解(光、生物降解)地膜、普通地膜和露地栽培玉米对比试验,探讨可降解地膜的降解性能及对土壤水分、温度和玉米生长的影响。结果表明,0.005mm厚可降解地膜的降解速度及强度均优于0.008mm厚膜,二者在覆膜后90d分别达降解5级、4级水平,地膜质量损失率达55.48%、39.99%。两种可降解地膜对土壤水分、温度和玉米生长的影响与普通地膜相当,均使0~20、>20~40cm土壤水分含量、地表及地下10cm土壤温度明显高于露地对照,使玉米出苗率提高,生育进程加快,株高、叶面积和地上部干物质积累量增加;其中0.008mm厚膜覆盖玉米效果优于0.005mm厚膜。研究认为,以可降解地膜替代普通地膜应用于农业生产具有可行性。

英文摘要:

Aiming at decreasing agricultural pollution caused by plastic film, degradation of two photo and bio-degradable films and their effects on soil temperature, moisture, and maize growth were studied with results compared to the plastic film and open field. Results indicated that degradable film of 0.005 mm had higher degradable degree and rate than the degradable film of 0.008 mm, with the fifth and fourth degradable degree gotten at 90 d and weight decreasing rate of 55.48 % and 39.99 % respectively. Effects of two degradable films on soil temperature, moisture and maize growth were same as those of plastic film, with higher soil moisture in 0-20 cm and 20-40 cm profile and higher soil temperature both surface and 10 cm below than open field. Seedling rate, growth progress, plant height, leaf area and dry weight were all higher for film covering, and effects of degradable film of 0.008 mm was better than those of 0.005 mm. Photo and bio-degradable film as substitute for plastic film could be applied to agricultural production

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