五种甲基溴土壤消毒替代技术比较研究

Comparative study on five alternative technologies of using methyl bromide in soil fumigation

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中文摘要：

实验在山东省青州市示范点种植番茄的4个温室中进行，以筛选出符合中国生产条件的，在经济和社会方面可行的甲基溴土壤消毒替代技术。实验选择了5种不同的甲基溴替代技术：甲基溴+不透气膜(MB+VIF)；威百亩(MS)；威百亩+不透气膜(MS+VIF)；太阳能+生防制剂(SS+BCA)；番茄抗性砧木(SIS-1，Lycopersicon lycopersicum ×L. hirsutum)。通过追踪测定土壤消毒效果、移栽后的幼苗死亡率、番茄生长状况、产量和品质以及田间根结线虫病害发生，对上述5种替代技术进行综合评价。2002～2003年的田间实验结果表明：从意大利引进的番茄抗性砧木(SIS-1)与本地品种嫁接是一种成功的甲基溴替代技术；威百亩作为一种甲基溴的替代技术是成功的；不透气膜(VIF)作为一种减少甲基溴施用量的过度性替代技术也是可行的；太阳能消毒加生防制剂不能成为一种可行的甲基溴替代技术。

英文摘要：

The demonstration experiment was conducted in four greenhouses with tomato crop in Qingzhou of Shandong Province for the aim to identify some technologies which were feasible under the current conditions in agricultural production, economical and social sector of China. Five alternative technologies were chosen in the experiment. They were MB (methyl bromide) +VIF (virtually impermeable film), MS (metham sodium), MS+VIF, SS (soil solarization) + BCAs (biological control agents), and resistant rootstock (SIS-1, Lycopersicon lycopersicum ×L. hirsutum). Integrated evaluation of the above five alternatives was realized by investigation of the effectiveness in soil fumigation, the dead rate of young plants after transplantation, growth conditions of tomato, the yield and fruit quality and the incidence of root-knot nematode. The experimental results in 2002～2003 indicated: (1) The resistant rootstock (SIS-1) introduced from Italy was a successful alternative technology to use methyl bromide while it was grafted with the local cultivar Maofen; (2) The metham sodium was also an effective alternative technology; (3) The VIF was feasible as a transitional technology to reduce the applied dosage of methyl bromide; (4) The SS+BCA could not be taken as an effective alternative technology to use methyl bromide in soil fumigation.

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