

古浪灌区土壤耕层有效锌、锰、铜、铁含量分析与评价

摘要:

摘要: 在2009-2010年, 对古浪县井灌区、河灌区和引黄灌区326个土壤样点的耕层有效锌、锰、铜、铁含量进行定量监测分析, 旨在为该区土壤合理施肥提供科学依据。结果表明, 井灌区、河灌区和引黄灌区分别有81.6%、67.1%和41.7%的耕地土壤有效锌含量低于作物的需锌临界值, 缺锌状况比较严重; 3个灌区土壤有效锰含量分别为5.64~10.12、6.46~14.68和7.22~15.17 mg/kg, 有效铜含量分别为0.42~1.12、0.90~2.00和0.81~2.47 mg/kg, 均高于作物需锰(5.0 mg/kg)和铜临界值(0.2 mg/kg), 属高含量水平; 3个灌区土壤有效铁含量分别为2.88~8.08、2.42~13.19和2.61~14.22 mg/kg, 平均为5.40、10.20和12.30 mg/kg, 虽高于作物需铁临界值(4.5 mg/kg), 但3个灌区仍分别有18.5%、6.4%和3.7%的耕地土壤有效铁含量低于作物需铁临界值。因此, 3个灌区土壤耕层土壤有效锌含量严重缺乏, 有效锰和有效铜含量丰富, 局部地方缺铁; 3个灌区种植作物时均需施锌肥, 适当施铁肥, 不需施锰和铜肥, 施肥量依作物种类和土壤状况不同而异。

关键词: 古浪灌区 土壤 有效锌 有效锰 有效铜 有效铁

Analysis and evaluation of available Zn, Mn, Cu and Fe contents of topsoil in Gulang Irrigation Region

Abstract:

Abstract: To provide a scientific basis for rational fertilization, the available Zn, Mn, Cu and Fe contents of top soils in 326 different sampling points that belonged to well irrigation areas, river irrigation areas and Yellow River irrigation areas were detected and analyzed from 2009 to 2010. The results showed that the available Zn contents in 81.6% of the well irrigation area soils, 67.1% of the river irrigation area soils and 41% of Yellow River irrigation area soils were lower than the critical value of the plant Zn demand, and this indicated the lacking of Zn was very serious in those regions. In river irrigation areas and Yellow River irrigation areas, the available soil Mn contents were 5.64-10.12, 6.46-14.68 and 7.22-15.17 mg/kg, respectively, which were higher than the critical value of the crop Mn demand(5.0 mg/kg), and the available soil Cu contents were 0.42-1.12, 0.90-2.00, 0.81-2.47 mg/kg respectively, which were also higher than the critical value of crop Cu demand(0.2 mg/kg). Therefore, the available soil Mn and Cu contents in those areas were at relatively high levels. Meanwhile, the available soil Fe in those three different kinds of irrigation areas were 2.88-8.08, 2.42-13.19 and 14.22 mg/kg, and the average values were 5.40, 10.20 and 12.30 mg/kg respectively. Although the available soil Fe contents in those areas were a little higher than the critical value of crop Fe demand (4.50 mg/kg), there were still 18.5% of the well irrigation area soils, 6.4% river irrigation area soils and 3.7% Yellow River irrigation area soils with low available soil Fe which did not reach the critical value of crop Fe demand. Generally speaking, available soil Zn were seriously lacking in those three irrigation areas, and available soil Mn and Cu contents were relatively high in most areas. Thus, those three irrigation areas needed Zn fertilizers and appropriate amounts of Fe fertilizers, and did not need Mn and Cu fertilizers, when crops were planted.

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Besides, the amount of fertilizer application should adapt to the crop species and the situations of soils.

Keywords: Gulang Irrigation Region soil available Zn content available Mn content available Cu content available Fe content

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