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小麦//蚕豆间作中的种间氮营养差异比较研究

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Nitrogen complementary use in intercropped wheat and faba bean

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摘要 通过根系分隔和15N标记土壤的盆栽试验,研究间作蚕豆和小麦对不同氮素来源利用的差异。结果表明,根系不分隔的处理小麦生长改善,其生物量、吸氮量都高于其它2种分隔方式;蚕豆的生长则表现被抑制,其生物量在根系不分隔时生物量和吸氮量皆最低。在尼龙网分隔的处理中,小麦植株体内^{15}N%丰度高于其它2种分隔方式,而蚕豆则表现为根系未分隔的处理^{15}N%丰度最低。表明小麦竞争肥料氮的能力强于蚕豆,小麦的竞争促进了蚕豆固定更多的空气氮。

关键词: 小麦 蚕豆 间作 氮营养 小麦 蚕豆 间作 氮营养

Abstract: The difference between intercropped fababean and wheat in using differ ent nitrogen source has been studied by pot experiment with root barrier and ^{15}N trace technique. The results showed that wheat growth was enhanced without root barrier, leading to higher biomass and N acquisition than those with both solid barrier and mesh barrier. However, the growth of faba bean was unexpectedly sup pressed due to wheat competition and the short growing periods made the recovery not possible. Thus, the biomass and N acquisition of faba bean without root bar rier was lowest in the three root barrier patterns. ^{15}N% abundance was highest i n wheat with mesh barrier, and ^{15}N% abundance was lowest in faba bean without ba rrier, which suggested that the competition of wheat for fertilizer N was strong er, and the competition leads to high percentage of N fixation from atmospheric N_2.

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