园艺学报 » 2014, Vol. 41 » Issue (5) :851-858 DOI:

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苹果树矮化中间砧SH6 对幼树氮素吸收、分配和贮藏的影响

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Effect of SH6 Dwarfing Interstock on N Absorption, Distribution and Storage Characteristic in Apple Saplings

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摘要 以2 年生大田栽培矮化中间砧富士苹果（宫藤富士/SH6/平邑甜茶）幼树和乔砧富士苹果（宫藤富士/平邑甜茶）幼树为试材，通过春季土施15N－尿素研究了SH6 矮化中间砧对苹果幼树N 素的吸收、利用及贮藏的影响。结果表明：与SH6 矮化中间砧幼树相比，乔砧幼树长势强，净生长量大。树体各器官的Ndff 值均表现为乔砧幼树大于SH6 矮化中间砧幼树；两种类型苹果幼树15N 分配率表现出一致规律，即叶片中最高，新梢和粗根中次之，中心干最小，其中40% ~ 70%氮素分配给新生器官（新梢和叶）；秋梢停长期，乔砧幼树地上部新生器官N 肥分配率（63.66%）明显高于SH6 矮化中间砧幼树（57.68%），乔砧幼树氮素利用率（14.32%）显著高于SH6 矮化中间砧幼树氮素利用率（8.55%）；秋季落叶后，乔砧幼树叶片中有33.11%的氮素回撤到树体内，而SH6 矮化中间砧幼树叶片有36.92%回撤到树体内，除细根外，各个器官均有氮素回流贮藏，其中粗根和皮层是苹果氮素主要的贮藏部位，乔砧幼树地下部氮素增量为8.34%，明显大于SH6 矮化中间砧幼树的增量6.85%。SH6 中间砧对苹果幼树氮素吸收及回流上均有显著的阻滞作用。

关键词： 苹果 SH6 矮化中间砧 氮素 吸收 分配 贮藏 阻滞

Abstract: Two-year-old SH6 dwarfing interstock apple trees（Kudowu/SH6/Malus hupehensis）and vigorous rootstock apple trees（Kudowu/Malus hupehensis）were used in the present study to explore the effect of SH6 dwarfing interstock on N absorption, distribution and storage in apple sapling. The results were as follows: The net growth of vigorous rootstock tree was larger than that of SH6 dwarfing interstock. During the same period, Ndff value of same organs vigorous rootstock was higher than that of the SH6 dwarf. Meanwhile, the 15N allocation rate of two kinds rootstock trees had a consistent pattern: Leaf was the highest, followed by new shoots and thick roots, while the center stem was the lowest, and 40%－70% of nitrogen was assigned to the new organs（new shoots and leaves）. The above part of N fertilizer allocation in vigorous rootstock（63.66%）was higher than that of the SH6 interstock（57.68%）in autumn shoot growth arrest stage, nitrogen use efficiency of vigorous rootstock young trees（14.32%）was higher than that of SH6 interstock apple trees（8.55%）. After leaves fell in autum, 33.11% of the nitrogen in the vigorous rootstock leaves retreated into trees, while about 36.92% retreated into the interstock trees. All organs except the fine root in the tree had 15N storage, and thick roots and phloems were the main storage parts in apple trees. The increment of nitrogen in vigorous rootstock underground part was 8.34%, while SH6 interstock apple tree was only 6.85%. SH6 interstocks had a certain block effect on N absorption and backflow.

Keywords: apple, SH6 dwarfing interstock, nitrogen, absorption, distribution, storage, retardant

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引用本文:

李洪娜, 葛顺峰, 门永阁等 .苹果树矮化中间砧SH6 对幼树氮素吸收、分配和贮藏的影响[J] 园艺学报, 2014,V41(5): 851-858

LI Hong-Na, GE Shun-Feng, MEN Yong-Ge etc .Effect of SH6 Dwarfing Interstock on N Absorption, Distribution and Storage Characteristic in Apple Saplings[J] ACTA HORTICULTURAE SINICA, 2014,V41(5): 851-858

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