

Alfalfa for Better Management of Farm Scale Nitrogen

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Nitrogen is an essential nutrient that supports life, but excess N in the human-environment system causes multiple adverse effects from the local to the global scale. Sustainable N management in agroecosystems, therefore, has become more and more critical to address the increasing concern over food security, environmental quality and climate change. Previous studies have shown that introducing legumes into cropping systems could efficiently improve nitrogen use efficiency. Alfalfa (*Medicago sativa* L.), as a perennial legume, not only serves as an important forage with high yield and high crude protein content, but also plays a significant role in field nitrogen management, for its excellent ability in biological nitrogen fixation and soil nitrogen absorption. However, Alfalfa production in some areas is limited during the hot-rainy summer period, but these conditions may allow the production of intercropped silage corn following spring harvests of alfalfa to boost the overall forage production. So we proposed an alfalfa-silage corn intercropping system for these regions and explored its proper nitrogen management conditions and the environmental benefits.