Managing scarce common resources is essential for sustained economic growth, particularly within agriculture. One response is to focus on the dissemination of agricultural conservation practices. A recent strand of development research aims to deepen and expedite such training by utilizing local social networks. Though effective, the latter can be quite costly and time consuming. Conversely, studies appealing to social norms on water use via social comparisons have proven to have lasting effects, and low dissemination costs, but have yet to be tested in the developing country context. We study the degree to which agricultural training versus training accompanied by group messaging affects individual use of groundwater in Haryana, India - a state in which groundwater is being rapidly depleted, yet is heavily relied upon for India's main staple crop, rice. Our study measures farmers' response to agronomic training coupled with messaging regarding their own and collective water use. In addition, while most studies rely on self-reported use measures, we collect both self-reported and metered outcomes to quantify verifiable impacts. First, we find that self reported measures over-report mean use, and underreport the variance in use. We also find that training alone does not impact water use; however, when coupled with the messaging has some effect, but in fact increases water use. We provide suggestive evidence that this may occur because farmers respond to messages regarding potential rainfall losses, but not rainfall gains. This has important implications for promoting sustainable agriculture practices with aim to conserve water.