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From Wells to Hoses – Ground Water Production and Conservation in the High Plains/Ogallala Aquifer

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ABSTRACT

The High Plains/Ogallala Aquifer is the largest continuous aquifer in the United States. In the 7 states pumping from the High Plains aquifer, irrigated acreage increased from 2.1 m acres in 1949 to 13.7 m acres in 1980. The increased irrigation, livestock, municipal, and industrial demands have resulted in significant mining and depletion of the aquifer. From 1950-2007 water levels in eastern New Mexico and West Texas declined 100-150 ft or more, an unsustainable loss of more than 50 % of the

available water column. For farming and dairies to remain competitive, the lifetime of the aquifer needs to be extended through proactive water conservation and reuse of ground water. Based on metered well production, conservation and conversion to drought tolerant crops are the most effective immediate ways to reduce water use. High efficiency, smaller diameter wells specifically designed for a declining Ogallala water table can reduce local drawdown and require less energy to pump ground water.