



USDA-CSREES 2007 National Water Quality Conference

Limited Irrigation No-till Cropping Systems Demonstration for the Pumpkin Creek Watershed

Recurrent droughts the past seven years have magnified the problems associated with declining ground water in the High Plains Aquifer (HPA) which underlies parts of CO, KS, NE, NM, OK, SD, TX and WY. Maintaining profitable agricultural while protecting surface and ground water supplies is still a complex issue. The Pumpkin Creek Watershed (450,700 ac, 39,347 irrigated) in the NE panhandle allocates 14 acre-inches for irrigation. The objectives of our project are to: (1) demonstrate limited irrigation and no-tillage cropping system that maximize water use efficiency to maintain groundwater supplies, and (2) educate area producers, local government and agricultural businesses about different management scenarios. In 2005, three cooperators were selected for demonstrating limited irrigation and no till cropping management systems. Alton Lerwick's site represents a smaller sized no-till farm (2 center pivots) with dryland and a small cow-calf operation. Lane and Gary Darnall's operation is a large livestock feedlot operation (15,000 head), large cow herd and a sizable farming operation (18 center pivots plus 2000 ac dryland). Kirk Laux's site represents a medium size livestock operation (250 head feedlot and 200-cow herd) and farming (8 center pivots, dryland cropping and range) mix. Alton applied less than 6 inches of water and produced about 1800 lbs/ac of spring canola. Lane applied 10 inches of water to his spring canola that yielded about 1500 lbs/ac. Kirk Laux used 8 inches of water on dry beans, and produced about 42 bushels/acre. The demonstration project has shown producers can manage with less water, but they must adapt to new cropping systems and irrigation techniques. The project coordinator has worked one-on-one with each cooperator to improve cultural practices, irrigation scheduling and management using part or all of several pivots. Field days have demonstrated to neighbors what can be done with less water.

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