Cropping Systems Research in the Driest Rainfed Wheat Region in the World. (A08-schillinger172539-Oral)

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Abstract:

Winter wheat (Triticum aestivum L.) - summer fallow is the predominant cropping system in the 120,000 ha Horse Heaven Hills region in south-central Washington. Blowing dust from summer fallow is a major source of soil loss and causes health problems. A 6-yr study was conducted from 1997 to 2002 to compare the conventional soft white winter wheat - summer fallow rotation to continuous annual no-till dark northern spring wheat (DNS). Long-term annual precipitation at the experiment site is 152 mm, which we believe is the lowest for any non-irrigated wheat region of the world. Annual precipitation during the study ranged from 104 mm to 249 mm and averaged 151 mm. Sixyr mean grain yield was 1,200 kg/ha for winter wheat after fallow and 540 kg/ha for annual DNS. Net economic returns for annual DNS were always negative and lagged behind winter wheat - summer fallow by an average U.S. 99 dollars ha/yr. Although annual no-till cropping has clear environmental advantages, growers in the Horse Heaven Hills have advised that, even if annually-cropped wheat should become more competitive after many years of no-till, they cannot afford to go through the transition period.

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vs. conventional