Direct Seeding into Heavy Irrigated Cereal Stubble instead of Burning. (S06-schillinger175007-Oral)

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Abstract:

A long-term irrigated cropping systems study was initiated in 1999 at Lind, WA, to evaluate a 3-yr rotation of winter wheat - spring barley - winter canola sown: i) directly into standing stubble, ii) after mechanical removal of stubble, and iii) after burning the stubble. The traditional practice of continuous annual winter wheat sown after burning and moldboard plowing is also included as a check treatment. There are 40 plots (3 crops x 3 stubble management practices + check x 4 replications). Measurements include: grain yield, diseases, soil quality assessment, soil water dynamics and weeds. Excellent stands and yields of spring barley direct seeded into 11 Mg/ha winter wheat stubble have been consistently achieved. Winter canola stands, weed pressure, and grain yield have been somewhat hampered by direct seeding into barley stubble compared to burning. The level of disease has been low in all treatments. Differences in soil enzyme activity and microbial analyses between burn/plow and the direct seed treatments become more apparent each year. Farmers and urban dwellers are closely following this study because direct seeding into heavy residue with a diverse 3-yr crop rotation eliminates the smoke emissions and air quality concerns created by stubble burning.

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