

## **The Economic and Environmental Revolution in Semi-arid Cropping in North America**

**Elwin G. Smith<sup>1</sup> and Douglas L. Young<sup>2</sup>**

*1 Research Scientist, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta, T1J 481 Canada*

*2 Professor, Department of Agricultural Economics, Washington State University, Pullman, Washington, 9914-6210, USA*

**Abstract:** semi-arid annual cropping has traditionally been identified with highly variable yields and returns and soil degradation due to wind erosion. Cropping systems in the semi-arid regions of North America have changed to make more efficient use of limited precipitation. American and Canadian farmers in the western plains have sharply reduced summer fallow, the practice of idling land for a growing season, and increased use of no-tillage farming. These two production systems are complementary because no-till conserves soil moisture allowing more frequent cropping (less fallow), and less fallow with diverse rotations increases the relative profitability of no-till. Less summer fallow and increased no-till provide potentially revolutionary environmental and economic benefits in the American and Canadian plains. Research efforts and policies would be wise to reinforce these trends.

**Keywords:** North American agriculture, semi-arid, economic, cropping systems, no-till, summer fallow.