

Crop Rotations as a Tool for Reducing Uncertainty

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Crop rotations are being simplified. These simplifications in our cropping systems are the result of many factors including: workload, farm size, ease of management, economics and logistics. As western Canadian farms are pressed to increase yields while reducing inputs and the environmental impact of food production, growers need help to determine what crop rotations can help them achieve these goals and remain economically viable. A cropping system, rotational study was undertaken at seven sites in western Canada, including a site in Carman, Manitoba. At each site, six cropping systems are evaluated: (i) conventional rotation (as the check), (ii) a pulse- or oilseed-intensified system; (iii) multiple-commodity diversified system with 'nutrient balance models'; (iv) a free-style, market-driven, profit-maximization system; (v) a high-risk, potentially high reward innovative system; and (vi) green-manure-incorporated soil health enhancement system. The objective is to determine the best (most productive, resilient and economical) cropping system for each ecozone; to improve nutrient use efficiency, enhance system resiliency to abiotic and biotic stresses, improve long-term soil health, reduce carbon footprint, and improve farm profitability.