

ENVIRONMENTAL IMPACT OF INTENSIVE GRAIN AND BEEF PRODUCTION SYSTEMS IN
THE BRAZILIAN WESTERN REGION

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A research project was initiated in 1996 at Embrapa Agropecuária Oeste (Brazil) with the objective of studying the environmental impact of intensive grain and beef production systems. The production systems were: -Soybean/oat succession with conventional tillage; -Oat/soybean/wheat/soybean/turnip/corn rotation with no-till system; -Soybean/pasture rotation with no-till system; and, -Continuous pasture. The project is based on a physical model on a 28 ha experimental area where soil characteristics (nutrients and organic matter levels, aggregate stability, water dynamics, and biological diversity) are evaluated through a series of fixed sampling sites at depths of 0.0-0.05, 0.05-0.10, and 0.10-0.20 m. Crop performance is evaluated through grain and dry matter yields, besides the beef yield and the economic performance of the different systems. A multi-disciplinary research team was necessary to conduct the project. At the same time, commercial farms that are using the different systems are monitored in order to validate and transfer the experimental results to growers. The first results indicate that the no-till system with crops/pasture rotation yielded the highest economic returns, besides improving the soil characteristics.