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"Factors Influencing the Response of Producers  
to Environmental Initiatives:  
Profitability, Capital Intensity, Complexity, and Risk"<sup>1</sup>

by

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Environmental initiatives to induce more environmentally sound farming practices and systems may range from regulatory to purely voluntary, with the latter accompanied by cost-share or other types of incentive payments. In between are various types of initiatives that are neither purely "regulatory" nor purely "voluntary"--such as current conservation compliance measures which are technically voluntary but which, for most farmers, can only be disregarded at unacceptable risk and loss of income. How large and small producers are likely to be impacted by and respond to different types of environmental initiatives can be judged by considering the *profitability, capital intensity, complexity, and risk* associated with the initiatives and with the practices or systems they are being induced to adopt.

These factors can be illustrated with the Water Quality Incentive Program (WQIP) and the Integrated Crop Management (ICM) program as voluntary program examples. Our recent research in a 3-county water quality demonstration project area of eastern South Dakota indicates that 45 out of 400 farms had enrolled in the WQIP or the ICM, or both, by the end of 1993. The most popular *practices* under these programs were nutrient management, pest management, conservation cropping sequence, and crop residue use. There was very little change in farming *systems*, involving crop types or rotations.

Preliminary economic results for three case farms in the project area indicated no change in "typical year" net profits "after" participation in ICM or WQIP--compared to "before" participation--on one farm, modest increase on another, and substantial increase on the other. Simulation of possible additional *practice* changes thought to improve groundwater quality showed further possible modest increases in profits on all three case farms. Simulated *system* changes, involving changes to more diverse crop rotations, also add to profitability under some circumstances. Neither the practice changes nor the system changes are very capital intensive. The practice changes involve minimal risk to participating farmers, but the system changes may involve more price and production risk. The WQIP and ICM policies are not complex, nor are the proposed practices; alternative farming systems are more complex than current systems, however.

The preliminary conclusions are that: (1) both "large" and "small" producers may adopt several of the *practice* changes being promoted through WQIP and ICM; and (2) *system* changes under consideration are more likely to be adopted by "medium" sized farmers than by either "small" or "large" farmers.

This approach can be used to analyze other types of policies, such as regulatory policies for livestock waste. For example, regulations which are quite complex or which require capital intensive technologies to comply may make it difficult for "small" and "medium" sized farms to remain competitive.

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<sup>1</sup>Summary of panel presentation in Session IIIB, The Impact of Environmental Regulations on Large and Small Producers and the Responsiveness of Producers to Voluntary Versus Mandatory Programs.

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