IMPACT STATEMENT

Tractor Pulled Tile Plows With GPS Grade Control

The Need

Some farmers would like to increase the number of acres farmed. However, limited availability of land combined with relatively high land prices are causing some farmers to focus on improving the economic viability of the ground they own. Drainage tile has been proven to be a long term investment to improve soil conditions and increase yields. Due to today's relatively favorable commodity prices, farmers are trying to increase yields by installing pattern drainage systems. These systems can cost up to $1,000 an acre. Hiring a contractor to install the drainage tile can cost $.70 to $.90 a foot excluding materials. Since some farmers own high horsepower tractors with GPS capabilities, and since tractor drawn tile plows and accessories are available, some farmers would like to evaluate the possibility of installing tile using the farm's labor force, and owned machinery and equipment. In the midwest, many farmers have invested in tractor pulled tile plows, finding that the plows work effectively and make economic sense. To make wise decisions regarding tractor pulled tile plow investment and use, Western New York (WNY) producers need analysis studying the effectiveness and economics. Research has not been done to demonstrate the effectiveness of these tile plows in WNY. For example, rocky soil conditions may affect the performance and economics of tractor pulled tile plows.

Extension Response

The NWNY Dairy, Livestock, and Field Crops Team set up trials with tractor pulled tile plows and GPS control systems to evaluate the performance of this equipment under WNY conditions. Three separate GPS tile control systems were evaluated and three brands of tile plows were assessed. A few from the small number of growers in WNY that own these plows were interviewed to verify the pros and cons of this equipment. Analysts used partial budgeting to estimate the expected change in profit associated with tile plow investment and use in an average future year (Table 1), and net present value analysis to examine economic considerations. Team members published two articles in AgFocus, the NWNY Programs monthly newsletter, and presented information at the two 2011 Corn Congresses.

Table 1. Expected Change in Annual Profit by Feet Installed per Year over Five Years by Custom Charge per Foot installed Excluding Materials – Tile Installation Using the Farm's Labor Force and Owned Machinery & Equipment versus Tile Installation by a Hired Contractor.

$/ ft.	Feet of Tile Installed per Year over 5 Years			
	10,000	20,000	30,000	40,000
0.60	-1951	1706	5362	9019
0.65	-1451	2706	6862	11019
0.70	-951	3706	8362	13019
0.75	-451	4706	9862	15019
0.80	49	5706	11362	17019

The Results

Over 600 people attending the Corn Congresses learned about performance and economic aspects associated with tractor pulled tile plows with GPS controls under WNY conditions. Research studies conclude that farm business owners who apply information from economic analysis when making capital investment decisions achieve greater levels of financial performance compared to those not making use of analysis. Information is equally valuable to the group that ultimately decides to make the capital investment as it is to the group that decides against the investment. Several farmers in the region purchased tile plows this spring, and a local GPS dealer has become a tile plow distributor in WNY. The research completed by the NWNY Team on tile plow investment and use contributed in part to the new local distributor's decision to offer a tractor pulled tile plow product line. In the first 4 months of 2011 this distributor has sold 14 plows with GPS controls.

North West New York Dairy, Livestock & Field Crops
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