From: Pacific Northwest Direct Seed Association Newsletter, Spring 2010, Vol. 10, No. 3
http://directseed.org/Newsletters/2010/Spring2010DirectLink.htmlle

Direct Seed Mentoring Project: An Economic Comparison of Direct Seed and Conventional Growers in the Washington/Idaho Palouse

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For more than 30 years, growers in this highly erodible, highly productive dryland grain growing region have been urged to adopt soil conserving methods. Early experiments in no-till production faced many hurdles, including lack of knowledge in weed and disease control, inadequate drills for residue levels, and seed and fertilizer placement issues. While a small group of dedicated growers worked through these problems to create systems that work throughout this varied region, the majority of growers continue to use conventional tillage methods.

Mentoring programs pair an experienced direct seed grower with a grower wanting to learn a new set of practices. Results to date of an ongoing direct seed mentoring program sponsored by the Spokane County Conservation District (SCCD) and Washington State University (WSU) and University of Idaho (UI) Extension will be reported in this article.

Nine growers and eight mentors were interviewed over the 2009/2010 period. These growers and mentors farm throughout the Palouse River Basin, from Reardan and Rockford in the north to Genesee and Uniontown to the south, and from Lamont and Endicott to the west to Deary and Kendrick in the east.

Results of this study show that cost savings rather than yield differences under direct seeding will drive the economics of direct seeding. Access to machinery remains the main barrier to further adoption. Variable production costs such as fuel, labor, and machinery repairs are reduced under direct seeding but fixed costs of machinery ownership are typically higher. Per acre fixed costs depend on farm size--acquisition of expensive no-till equipment and a sufficiently high powered tractor will probably not be practical for a small farm. Custom seeding or drill rental may be the only feasible route for these farmers.

The majority of growers participating in this program did not see changes in yields under direct seeding. Two growers had higher yields for their direct seeded spring grains while one grower had lower yields; most of these differences can be explained by timing of the seeding. Direct seed mentors have higher than average crop yields for their areas. Further details, including crop budgets by rainfall zone, are available upon request.

Operating costs for machinery usage, including fuel, repair, and labor costs, were higher for conventional tillage (CT) growers in this survey (Figure 1). Repair costs are 28% higher for CT, at $7.33 per acre compared to $5.75 per acre for direct seed (DS) production. As expected, fuel and lube costs are lower for DS, averaging $9.22 per acre, compared to $14.66 per acre for CT, a savings of $5.45 per acre for DS. DS production averaged 3.89 gallons per acre, compared to 6.23 gallons per acre for CT (fuel use included harvesting and miscellaneous truck usage but excluded hauling to market outlets).

Another major difference between the two production methods is the difference in machine labor requirements. DS production averaged 0.27 hours per acre of machinery labor, compared to 0.52 hours per acre for CT. Valued at $20 per acre, machinery labor costs for DS were just 56% of the CT machinery labor expense.

One frequently stated barrier to DS production is the cost of DS machinery. DS drills are typically much more expensive than CT drills, with a good new DS drill costing nearly $200,000, compared to $80,000 for a top-of-the-line CT drill. Capital recovery costs in Table 1 refer to an annual cost for depreciation and interest in the machinery investment. These costs are about 40% higher for DS growers, averaging $19.41 per acre compared to $13.81 per acre (Figure 1).

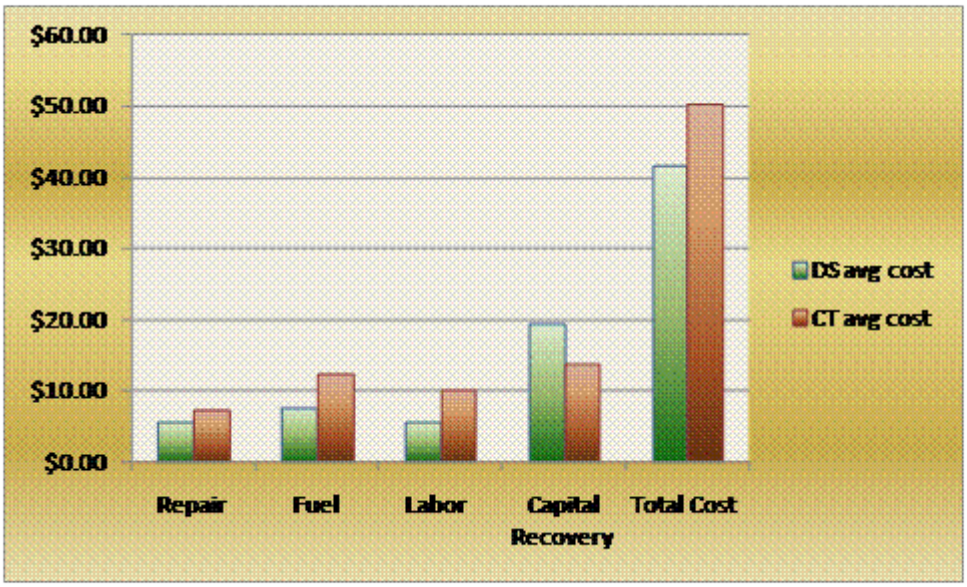

Figure 1. Machinery cost comparisons for surveyed direct seed and conventional tillage growers.

For any grower contemplating a switch to direct seeding, both profitability and feasibility must be considered. While DS practices may be more profitable, as results in this study indicate, cash flow considerations may prohibit purchasing new equipment. An equipment purchase is typically paid for with a multi-year note, for example, a 3- or 5-year loan. These costs are used to calculate cash flow or feasibility, while profitability is calculated over the estimated life of the machinery. Ideally, machinery is paid for as quickly as possible, in order to reduce interest costs. Luckily, low-interest loan programs are available to growers interested in purchasing machinery for reducing tillage or handling residue.

In summary, an economic analysis of this direct seed mentoring program to date shows that operating costs, particularly fuel and labor, can be reduced by switching to direct seed practices. Tillage reduction also increases herbicide usage, so these expenses must be weighed against variable cost savings. Fixed costs, on the other hand, must be carefully analyzed for each operator, as they will vary based on farm size. Savings in variable costs may well be outweighed by cost increases in fixed costs. Each farm will need to conduct a careful cost analysis before changing tillage machinery. Budgets have been created for each participant in the study; further information is available upon request.

Fortunately, there are a number of underutilized government incentive programs for encouraging direct seeding. Growers can get low interest loans for machinery payments as well as generous per acre incentives for switching to direct seed. The mentoring program is an excellent opportunity to get custom seeding and assistance in other aspects of direct seeding from participating growers. In addition, information on how to participate in other governmental incentive programs is available from SCCD and WSU and UI Extension.