

Timely Soybean Planting is Pivotal to Profits

Mild weather and concern for delayed planting of double crop soybeans provides motivation to consider harvesting wheat a bit earlier this spring and drying the crop when possible. Harvest moisture is dictated by the available drying system, with 15%, 17% and 20% or higher suggested for bins without heat, bins with heat, and high temperature dryers, respectively. A recent survey of cash prices for wheat and soybeans showed current levels near \$5 and \$9 per bushel, respectively. Current energy prices are similar to last fall, with LP gas around \$1.40 per gallon.

A spreadsheet was developed to help producers weigh the costs of wheat drying with the probable loss in soybean yields due to delayed planting. It considers grain and energy prices along with a few other related factors that are then used to calculate gross profits from the soybean crop and net returns to the wheat enterprise after subtracting drying and handling costs. Potential yield losses per day are considered also for both crops. For wheat, a field drying rate is assumed to calculate the drying cost as harvest progresses. Of course, towards the end of harvest, wheat will usually be dry enough to store or market directly from the field but may result in over-drying which is an additional cost. By that time potential soybean yields will have fallen off dramatically.

To look at an example, consider the ‘pivotal’ harvest date where potential soybean yields reach a break point. This varies from year to year depending on available heat units or degree days for crop development. You would want to start harvest several days earlier to avoid working much beyond that date and allow for harvest capacity and a few delays due to weather and/or mechanical problems. With current grain prices, a soybean yield of 45 bushels per acre, and daily yield loss of 2.3% (1 bushel per acre per day), the costs of delayed planting can be calculated. For wheat, an average yield of 85 bushels per acre with a 0.5% loss per day for delayed harvest can be assumed. Drying costs will vary between systems, but with current energy prices and an initial moisture level of 26%, the drying and handling cost would be about 26 cents per bushel (or \$22 per acre). The gross return for soybeans and net return for wheat after paying for drying and handling (D & H) would be \$405 and \$403, respectively (Table 1) when high temperature drying is available to allow harvest to begin one week before the ‘pivot’ harvest date (week -1).

Table 1. Changes in soybean and wheat yields, wheat drying costs, and returns to the double crop enterprise during a 3-week harvest period with no extreme weather losses.

Week + / -	Soybeans		Wheat							Net DC Returns* \$/ ac
	Yield bu/ac	Gross Return \$/ ac	Yield bu/ac	MC %wb	D & H Cost \$/ bu	D & H Cost \$/ ac	All Costs \$/ ac	Gross Returns \$/ ac	Net Returns \$/ ac	
-1	45.0	\$ 405	85.0	26.0	\$ 0.26	\$ 22	\$ 22	\$ 425	\$ 403	\$ 208
0	45.0	\$ 405	82.1	19.0	\$ 0.12	\$ 10	\$ 25	\$ 410	\$ 386	\$ 191
+1	38.2	\$ 344	79.2	12.0	\$ 0.10	\$ 8	\$ 37	\$ 396	\$ 360	\$ 104
+2	32.5	\$ 292	76.5	11.0	\$ 0.17	\$ 13	\$ 56	\$ 383	\$ 327	\$ 19

* Returns assuming a double crop production cost of \$600/ac.

To be profitable, this total must cover production costs for double crop enterprises, which vary widely but were estimated to be \$600 per acre this year by UK’s Agricultural Economics Department (<https://anr.ca.uky.edu/content/decision-aids-budgets-calculators>). This value includes machinery costs but not land rent, but this can easily be added for individual operations. Table 1 shows that a profit of \$208/ac could be expected when harvesting wheat a week before the ‘pivot’ date. Each row in the table shows how these costs and returns change through a 3-week harvest period. Note that if harvest is delayed two weeks beyond the ideal period, returns to the operation can fall sharply due primarily to lower

potential soybean yields and over-drying cost if wheat dries in the field below the market moisture level (usually 13.5%).

Data in the table are shown in more detail in Figure 1, where daily changes in soybean and wheat yield losses, wheat drying and handling, and the total of these costs are illustrated. Corresponding net returns for the double crop enterprise (last column in Table 1) show an average about \$2.4 per acre-day before the ‘pivot’ harvest date (due to wheat drying) and increase to about \$11 per acre for each day that soybean planting is delayed afterward (due to lower yields)! For these reasons, farmers who have dryers will be interested in harvesting wheat early this spring to boost soybean yields and net profits.

More information on wheat drying is provided in Chapter 10 of UK’s Wheat Management Guide (<http://ww2.ca.uky.edu/agcomm/pubs/id/id125/10.pdf>) and at UK Cooperative Extension Service offices, The spreadsheet is available on the Biosystems and Agricultural Engineering website (www.uky.edu/bae) or by contacting the author.

Fig. 1. Daily operating costs for drying wheat and planting soybeans early compared with field drying and delayed planting using current prices (\$9.00 for beans, \$5.00 for wheat and \$1.40 for LP gas).

