



## Late Planted Grain Sorghum Reduces Profit Potential

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### Introduction

Due to attractive prices, many Louisiana farmers are considering planting grain sorghum following their harvest of winter wheat. Grain sorghum appears to be a good option because prices are very good and it tolerates dry weather better than alternative crops. However, producers considering grain sorghum as a double-crop following wheat need to be aware of several factors that can affect its profitability if it is planted after the recommended planting dates.

### Late Planting Considerations

The LSU AgCenter recommends planting grain sorghum before May 1 in south Louisiana and before May 15 in north Louisiana. Since winter wheat harvest usually does not normally occur until early May, grain sorghum planted following winter wheat harvest would generally be planted later than the recommended optimum planting dates. Planting delayed beyond the optimum planting time results in decreased yields compared to grain sorghum planted earlier. In addition, delayed planting exposes the plants to higher insect and disease pest pressure. For a summary of LSU AgCenter recommendations regarding grain sorghum see the following site: [http://www.lsuagcenter.com/en/crops\\_livestock/crops/Sorghum/](http://www.lsuagcenter.com/en/crops_livestock/crops/Sorghum/)

Recommended planting dates for grain sorghum in south Louisiana are April 1 through May 1. In north Louisiana, the optimum planting dates are April 15 through May 15. Producers should plant within these time frames to reduce a high probability of low yields and more insect and disease pressure. Arkansas research on grain sorghum yield response at multiple planting dates suggests that planting on May 20 reduced yields by 25 percent compared to the optimum date of April 19. Research conducted elsewhere suggests similar, or even greater, yield reductions with late-planted grain sorghum. For a summary of these studies see: <http://www.plantmanagementnetwork.org/pub/cm/research/2003/sorghum/>

Late planting also subjects grain sorghum plants to higher populations of insect pests and disease infection. Delayed planting places grain sorghum plants in growth stages that make them susceptible to insect pests migrating from maturing crops nearby. Crops such as field corn, cotton, and soybean, can provide a source of insect populations that may infest the much younger grain sorghum. Higher insect pressure will require additional control measures to manage the insect population. Insects of greatest concern are the sorghum midge, sorghum webworm, a complex of headworms, and the sugarcane borer.

### Impact on Profitability

Given the potential yield losses associated with late-planted grain sorghum, it is important for growers to recognize the likely effect on profitability. To assess the potential impact of profitability, based on changes in production costs and probable returns, two budgets were prepared. The first illustrates estimates of costs and returns for grain sorghum planted during the recommended planting window and the other reflects the same information for late-planted grain sorghum. For this comparison, a market price of \$3.30 per bushel was used. Producers may have the opportunity to market the 2007 grain sorghum crop at a higher price, but this price was

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selected as a conservative estimate. The production costs are the same as those used in the 2007 budget projections published in the Department of Agricultural Economics and Agribusiness and found at the LSU AgCenter web site: <http://www.lsuagcenter.com/NR/rdonlyres/990E50C9-8502-4320-84B5-D3A3F1CE0379/33825/2007NECottonBudgets.pdf>

The budgets for grain sorghum planted in the normal planting window and assumed to have normal insect pressure reflect a 100 bushel yield (Table 1). This is above the recent five-year state average yield, but approximately equal to the most recent two-year average. Under these assumptions, grain sorghum planted in the normal planting window could be expected to generate approximately \$330 per acre in revenue. Per acre variable (out-of-pocket) costs are estimated to be about \$150 which gives a return above variable costs of \$180 per acre. Only variable costs are shown here because fixed costs are the same for either normal or late-planted grain sorghum.

A similar budget for late-planted grain sorghum assumes a 25 percent yield reduction (Table 2). Previous research, cited above, suggests at least a 25 percent reduction in yield with planting beyond the optimum period. With the lower yield, revenue is estimated to be \$248 per acre. Variable costs for the late-planted grain sorghum are estimated to be about \$203 per acre. This represents a 35 percent increase in production costs above that for grain sorghum planted in the recommended planting window. These increased cost are due to additional insecticide and application costs to manage higher and more frequent populations of insect pests. In this scenario it is assumed that four additional applications of insecticides were required (three applications of Intrepid and one application of Lannate). All applications were assumed to be made by air in three gallons of water. The increased cost, coupled with decreased yield, gives a return above variable costs of approximately \$44 per acre, or a reduction of 75 percent when compared to grain sorghum planted in the recommended planting window.

The above illustration assumes that if grain sorghum is planted late, it will suffer a yield reduction and be subjected to heavier infestations of insects. While these conditions are not certainties, there is a high probability of their occurrence. The total difference in returns above variable costs shown here is composed of a decrease in returns of \$82.50 per acre and increased costs of \$53.01. The increased costs are for additional insecticides and aerial applications. Therefore, even with the absence of additional insect pressure, late planted grain sorghum would incur a reduction in revenue due to lower yields. This comparison also assumes that the products will provide effective control of the pest problem and yield losses will be mitigated. It is unlikely that these products will be able to provide 100 percent control under intense late-season pest infestations, and even more frequent treatments may be required.

## **Summary**

While the LSU AgCenter does not recommend planting grain sorghum beyond the optimum planting window, it is recognized that some acreage will be seeded later than the optimum time. If grain sorghum is planted late, producers should recognize that the profit expectations are not the same as those for grain sorghum planted during the recommended time frame. This paper illustrates the potential impact late-planting can have on projected profitability, compared to planting during the recommended planting window. Late planting could reduce revenue by \$82.50 per acre. In addition, late-planted grain sorghum is also subjected to more intense insect pressure from a wider spectrum of insect pests. This increased pressure requires additional production inputs (approximately \$53/acre) to manage the additional pests. The reduced revenue, coupled with higher costs, will dramatically decrease (75 percent) the expected returns from late-planted grain sorghum.

Table 1. Estimated Costs and Returns per Acre  
 Grain Sorghum, 12-Row Equipment, Owner-Operator  
 Optimum Planting Time, All Areas, Louisiana, 2007

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
INCOME					
Grain Sorghum	bu	3.30	100.0000	330.00	_____
				-----	
TOTAL INCOME				330.00	_____
DIRECT EXPENSES					
CUSTOM SPRAY					
App by Air (3 gal)	appl	3.50	2.0000	7.00	_____
FERTILIZERS					
LA Nitrogen	lb	0.39	120.0000	46.80	_____
LA Phosphate	lb	0.31	35.0000	10.85	_____
LA Potash	lb	0.22	35.0000	7.70	_____
HERBICIDES					
Atrazine 4L	pt	1.18	4.0000	4.72	_____
Lasso 4EC	qt	3.05	0.7500	2.29	_____
INSECTICIDES					
Karate Z	oz	3.00	3.5000	10.50	_____
SEED/PLANTS					
Sorghum Concept	lb	1.36	6.0000	8.16	_____
CUSTOM HARVEST/HAUL					
Haul Sorghum	bu	0.16	100.0000	16.00	_____
OPERATOR LABOR					
Harvesters	hour	15.30	0.0851	1.30	_____
HAND LABOR					
Implements	hour	9.60	0.1436	1.38	_____
LA Hired Labor					
Tractors	hour	9.60	0.5209	4.99	_____
DIESEL FUEL					
Tractors	gal	2.10	5.2751	11.07	_____
Harvesters	gal	2.10	1.2047	2.53	_____
REPAIR & MAINTENANCE					
Implements	Acre	4.69	1.0000	4.69	_____
Tractors	Acre	1.96	1.0000	1.96	_____
Harvesters	Acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	Acre	6.52	1.0000	6.52	_____
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TOTAL DIRECT EXPENSES				150.12	_____
RETURNS ABOVE DIRECT EXPENSES				179.88	_____

Table 2. Estimated Costs and Returns per Acre  
 Grain Sorghum, 12-Row Equipment, Owner-Operator  
 Late Planting, All Areas, Louisiana, 2007

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
INCOME					
Grain Sorghum	bu	3.30	75.0000	247.50	_____
				-----	
TOTAL INCOME				247.50	_____
DIRECT EXPENSES					
CUSTOM SPRAY					
App by Air (3 gal)	appl	3.50	5.0000	17.50	_____
FERTILIZERS					
LA Nitrogen	lb	0.39	120.0000	46.80	_____
LA Phosphate	lb	0.31	35.0000	10.85	_____
LA Potash	lb	0.22	35.0000	7.70	_____
HERBICIDES					
Atrazine 4L	pt	1.18	4.0000	4.72	_____
Lasso 4EC	qt	3.05	0.7500	2.29	_____
INSECTICIDES					
Karate Z	oz	3.00	3.5000	10.50	_____
Intrepid 2F <sup>1</sup>	oz	1.88	16.0000	37.60	_____
Lannate LV	pt	7.09	1.0000	7.09	_____
SEED/PLANTS					
Sorghum Concept	lb	1.36	6.0000	8.16	_____
CUSTOM HARVEST/HAUL					
Haul Sorghum	bu	0.16	75.0000	12.00	_____
OPERATOR LABOR					
Harvesters	hour	15.30	0.0851	1.30	_____
HAND LABOR					
Implements	hour	9.60	0.1436	1.38	_____
LA Hired Labor					
Tractors	hour	9.60	0.5209	4.99	_____
DIESEL FUEL					
Tractors	gal	2.10	5.2751	11.07	_____
Harvesters	gal	2.10	1.2047	2.53	_____
REPAIR & MAINTENANCE					
Implements	Acre	4.69	1.0000	4.69	_____
Tractors	Acre	1.96	1.0000	1.96	_____
Harvesters	Acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	Acre	8.08	1.0000	8.34	_____
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TOTAL DIRECT EXPENSES				203.13	_____
RETURNS ABOVE DIRECT EXPENSES				44.37	_____

<sup>1</sup>Intrepid is currently not labeled for use in grain sorghum; LSU AgCenter, the Louisiana Dept of Agriculture and Forestry, and Dow AgroSciences are trying to obtain a state label for emergency use during 2007.