

Examining Cropland Rental Arrangements for Rice Production in Louisiana



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Introduction

Land tenure is a primary factor influencing the allocation of resources and ultimately net profitability of crop production. Many family farms have expanded acreage operated over the years in an effort to reduce fixed production expenses per farm acre. National data from 2001 on U.S. farms reported that approximately 80 percent of the large family farms in the country leased some or all of the agricultural land farmed (Hoppe and Korb). Recent research findings on the decoupled nature of U.S. farm program payments concluded that farm program payments directly influence cash rental rates for agricultural land, although not on a dollar for dollar basis (Roberts).

The 2002 Census of Agriculture reported that 62 percent of the total farm acreage in the United States was operated by farmers who were either part owners or full tenants of the land they farmed (USDA, NASS, 2004). Furthermore, of the farms generally considered to be commercial size operations (\$50,000 or more in gross sales), approximately 65 percent of the principal farm operators were either part owners or full tenants. As a result, crop rental arrangements have the potential to be a significant factor in the overall financial structure and profitability situation of many farms.

In Louisiana, crop share rental arrangements for rice production have been complex relative to other crops produced due, in part, to the fact that rice must be irrigated. These irrigation pumping costs represent a major cost item in producing rice and historically have been paid by the landlord. Rising production costs have forced many rice producers to renegotiate their crop share rental agreements with their landlords as a means of increasing producer net returns per acre. The percentage contribution of all rice variable production costs paid by both the producer and landlord can have a significant impact on the allocation of crop net returns.

Rental arrangements for rice production in Louisiana are predominately share rent with the landlord generally sharing in some expenses. However, in recent years, rice producers have been renegotiating rental arrangements in response to increasing variable production costs and declining net returns. Most notably, increases in energy-related inputs, e.g. diesel fuel, chemicals, and fertilizer, have been a primary influence leading to rental arrangement renegotiation. The allocation of capital and resources invested by the grower and landlord can serve as a management strategy when marketing, selling, and reinvesting in the crop.

Rising energy prices incurred by the farming operation to power irrigation field pumps, motors, and system gear heads have been a significant factor in land tenure negotiations in efforts to reach an equitable rental arrangement for both the grower and landlord. Since irrigation pumping

costs comprise a significant portion of variable production costs per acre in Louisiana rice operations, irrigation system design and the method of field flooding aids in the evaluation of the economic efficiency of the system. Likewise, the fixed ownership costs of irrigation systems, e.g. motor, pumps, and pipe installation as well as repair costs, need to be considered.

The average market price per hundredweight of rough rice in Louisiana has increased significantly since 2005. The 2007 rice price increased to \$11.10 per hundredweight; nearly 49 percent of its amount in 2005. Market prices in 2008 have increased to substantially higher, record levels. Tight domestic and foreign stocks of rice coupled with high domestic grain prices have a combined effect to support a higher long term market price for rice. Although gross returns per acre have increased, so have variable production costs per acre. Projected rice variable production expenses per acre for the 2008 crop year increased by 37.6 percent from their mark in 2005, mainly from the substantial increase in fuel and fertilizer input costs.

Energy-related inputs, which require a large appropriation from the total farm operating budget, have seen the largest increase in their unit costs. Variable production costs per acre were projected, in early 2008, to total \$599 to \$616 per acre for production of conventional or Clearfield rice varieties in Louisiana. The projected fuel and fertilizer component of rice production, alone accounts for 50.7 percent of the total projected variable expenses per acre in 2008. In examining a one year interval from January 2007 to January 2008, nitrogen fertilizer increased from \$0.39 per pound of nitrogen to \$0.54 per pound. Another large variable input increase that year was diesel fuel, which has increased significantly. From a historical perspective, diesel fuel has doubled in per gallon price and nitrogen fertilizer has increased by 80 percent in its pound price since 2005.

The USDA long-term projections indicate that the variable production costs per acre for rice will increase by 21 percent per acre by 2017 (USDA 2008). Average market price is expected to increase by 14 percent in 2017. These increases in production components will affect the amount that is contributed by both grower and landlord in cases where fertilizer and/or pumping costs are shared. In certain instances where one party accepts full responsibility of financing one of these inputs, that party's contribution will increase relative to the price increase.

In many rice crop share rental arrangements, the landlord may pay all or a portion of certain production expenses. Typically, irrigation pumping cost is the most common rice production expense that may be paid in full or in part by the landlord. This serves as a decision-making tool enabling both the producer and landlord to examine the significance that rising input prices have on crop net returns. This is commonly referred to as proportional cost sharing. Proportionality is a key concept in land tenure negotiations due to the underling principle that returns should be shared in the same proportion as the costs are contributed. Other production expenses such as seed, fertilizer, chemical, and drying may or may not be shared by the producer and landlord in the same percentage that the crop proceeds are shared.

An economic research study was developed to identify current rental arrangements being utilized in Louisiana rice production and to evaluate their relative impact on crop net returns. This report presents summary data from the survey on current rice rental arrangements associated with rice production in the state.

Methods

In June of 2007, a one-page survey was mailed to 1,128 rice contacts in the major rice producing parishes of the state to solicit the type of rental arrangement, rent mechanism, planted rice acreage, and the percentage of variable production costs paid by the landlord on a per tract basis. Parishes surveyed included Acadia, Calcasieu, Evangeline, Jefferson Davis, Morehouse, and Vermilion. The purpose of this study was to identify predominant types of rice rental arrangements currently in practice. Specific data on possible variable production costs shared by producers and landlords included: irrigation pumping, seed, fertilizer, chemicals, and drying. Preliminary results from the study suggest optimal rice rental arrangements can vary widely within a relatively small localized area of production and are dependent on several factors which impact the net returns received by the producer and landlord.

In August of 2007, the total number of survey respondents was 202, representing a 16.45 percent response rate. Of the 202 respondents, 158 reflected land tenure systems (for rice) currently in production. Another 44 survey respondents were categorized as non-applicable due to operator retirement or death, change of address, movement away from rice farming activities, termination of lease, and/or loss of cropland. These 158 respondents represented a 14.01 percent sample response rate. Of those respondents, 146 were from the southwestern rice-producing parishes while, only eight were from the northeastern part of the state. Four of the surveys were from an unidentified origin within the state. In total, 487 land tracts were reported. Of those 487 rice tracts, 100 were rented on a cash basis, 350 were share rented, and 37 tracts contained an unidentified rent mechanism.

Results

An equitable crop share arrangement identifies all contributions, e.g. crop production expenses, land preparation, etc., made separately and collectively by a landowner and a tenant. Income is then said to be shared in that same proportion. Equitable lease theory suggests that returns to land are similar to the returns to non-land inputs. The economic importance of a rental arrangement is dependent upon the terms and conditions that a producer enters into with a landlord or waterlord due to the fact that arrangements can vary across, as well as within, agricultural production regions. Agricultural land lease arrangements are generally of two basic types: cash rent or share rent. Results are categorized according to the indicated rent payment mechanism.

Cash Rented Tracts

There were 100 total tracts that were rented on a cash basis. However, 93 tracts are presented based on the thoroughness of the respondent survey relative to indicated rental information per tract (Figure 1). The average cash rent per tract was calculated to identify the amount of rent paid per base acre, rent paid per planted rice acre, and the rent paid per acre over the entire tract of land (Table 1). The weighted average for the amount paid in cash rent per rice base acre was \$76.64. Survey sample results indicated a total rice base acreage amount over all cash rented tracts surveyed was 11,430 acres, or 55.59% of total acres. Cash rent paid per planted rice acre

was calculated to have a weighted average of \$88.82 per acre. Survey sample results indicated 7,479 planted rice acres which corresponds to a 65.43 percent of base acreage (of rice) being planted. Considering the total acreage in the field, regardless of the amount of base and/or planted rice acres, the weighted average cash rent was less, at \$40.24 per acre, which represented 20,561 total tract acres from respondents in the survey.

Figure 1. Range of cash rents paid per land tract acre.

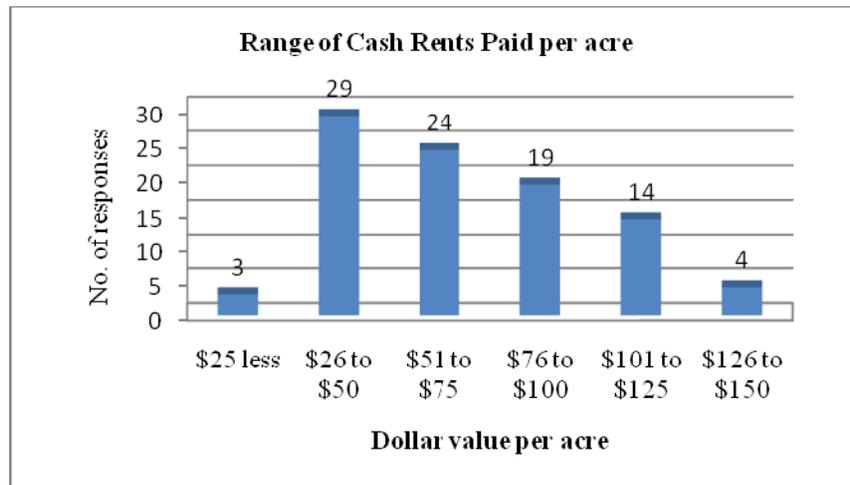


Table 1. Acre-weighted average for rice cash rents paid.

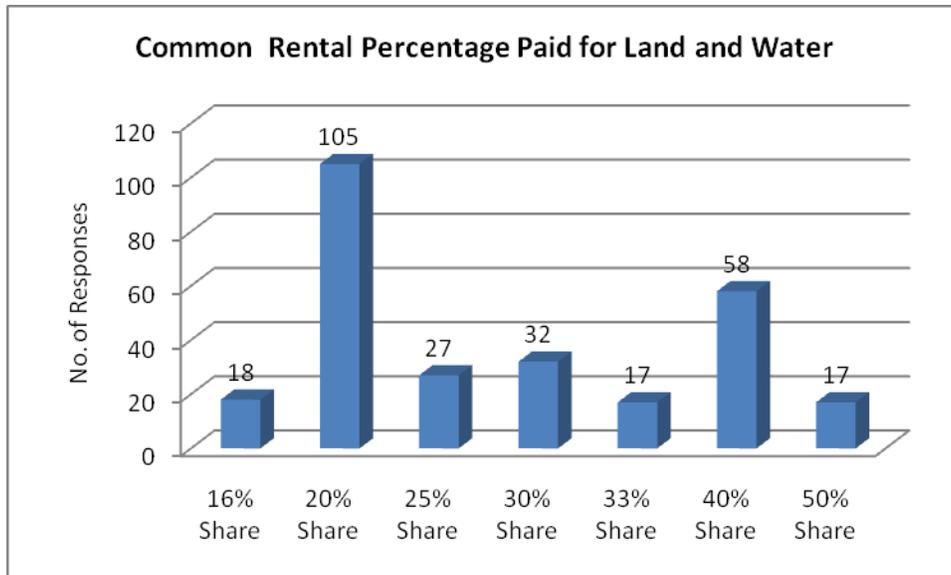
<i>Average Cash Rent Paid</i>	
Per land tract acre	\$40.23
Per rice base acre	\$76.64
Per rice planted acre	\$88.82

Share Rented Tracts

There were 350 observed share rented land tenure tracts in the study. The total acreage across all share rented tracts was 127,759 acres. The total rice base acreage share rented was 61,055 acres with the 2007 planted acreage totaling 54,236 acres. Share rental arrangement values represent the percent paid for land and water by the rice producer. Of the 350 share rented tracts, 334 observations contained complete share rental arrangement information for the specified land tract. This criterion was deemed sufficient and relevant for the purpose of our evaluation. Therefore, only these 334 observations were used in our analysis. The reported crop share rental percentage paid for land and water ranged from 10 to 77 percent. Low crop share percentage arrangements were generally associated with payment only for land, with the producer paying irrigation pumping costs. Production costs share by both parties were variable across the entire share rented survey results. Specifically, 31.4 percent (105 tracts) of the sample share rent tracts utilized a 20 percent crop share agreement. A 40 percent arrangement represented 17.4 percent

(58 tracts); the 30 percent share agreement accounted for 9.6 percent (32 tracts); the 25 percent share agreement accounted for 8.1 percent (27 tracts); the 16.7 percent represented 5.4 percent of the sample (18 tracts); and 33 and 50 percent crop shares accounted for 5.1 percent each of the share rented respondents (17 tracts), respectively. These arrangements represented 82.1 percent of all indicated share rent tracts. The reported amount of base acreage on these tracts was 47.79 percent of the total acreage, with 88.83 percent of the base acres were planted (Figure 2).

Figure 2. Common share rent percentage paid for land and water rights in Louisiana rice production.

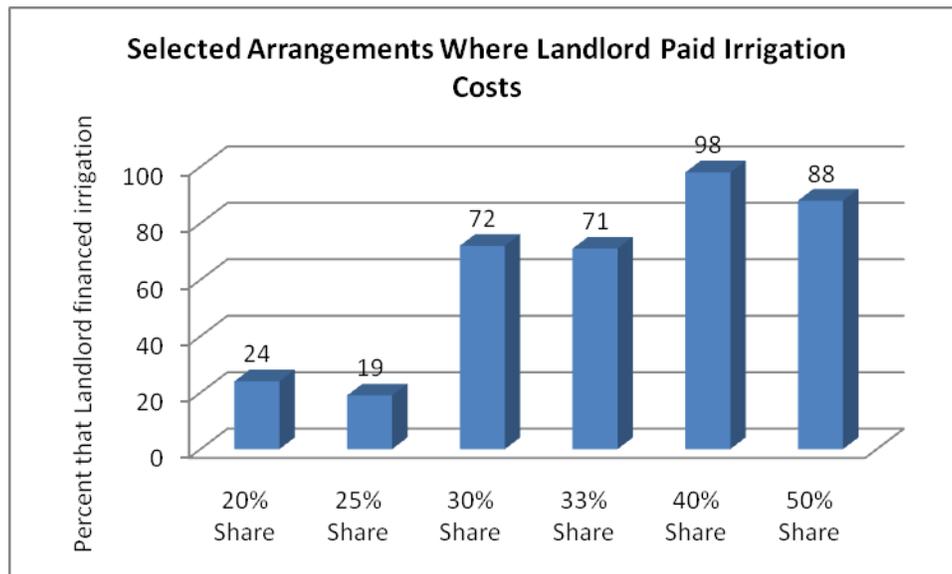


In examining the entire data set of rice share rental arrangements, the landlord paid the irrigation pumping cost 23.8 percent of the time for all 80/20 arrangements. Landlord payment of pumping cost held true for 98.3 percent of the 60/40 arrangements; 71.9 percent of the 70/30 agreements; and 18.5 percent of the indicated 75/25 rental arrangements (Figure 3). For rice land tracts that are share-rented, the landlord may contribute in the production of the crop because he has a vested interest in the yield per acre. In share rented land tenure arrangements, the landlord has an interest or incentive to contribute in the production costs due to the fact that as productivity of the crop increases, he stands to receive higher profits from the crop receipts compared to the same rental percentage of a crop with lower yields per acre. This is in contrast to a landowner who rents out his land for a fixed dollar amount regardless of the output per acre. For cash rented rice tracts, irrigation pumping costs were paid by the landlord on 22 of the 94 tracts.

For tracts where the rice producer is paying a 16.7 percent (one sixth) share for land and water, the only indicated category that the landlord contributed was 15.5 percent of the drying costs. For a 20 percent paid share by the producer, the landlord contributed an average of 42.1 percent of pumping costs, 15.9 percent of seed, 21.7 percent of fertilizer, 21.7 percent of chemicals, and 20.3 percent of the drying costs. For 30 percent share arrangements, 80.4 percent of irrigation costs and 31 percent of drying costs were paid on average by the landlord. Seed, fertilizer, and chemical contributions made under the share percentage were less than 5 percent for each of the

said mentioned inputs. One-third crop share (33 percent) arrangements indicated that all irrigation costs were paid by the landlord with 16.6 percent of seed, fertilizer, and chemical costs also paid, respectively. Drying was contributed at 33 percent under this arrangement. All irrigation costs were paid by the landlord under the 40 percent split (60/40 arrangement). The landlord contributed to 20.3 percent of seed, 36.1 percent of fertilizer, 36 percent of chemicals, and 39.2 percent of drying costs on average. Finally the 50 percent rental arrangement had an average of 94 percent of irrigation costs were paid by the landlord with 88 percent of seed, 51 percent of fertilizer, 50 percent of chemicals, and 50 percent of drying.

Figure 3. Landlord contributing the full irrigation pumping cost in selected share rental arrangements.



Summary

Share rental arrangements share production risk between the producer and landlord relative to the percentage contribution to costs and percentage received from the crop's returns. Cash rents allow risk to be absorbed by the producer, or in some cases the landlord, depending upon the legal terms of the contract. Often times, a fixed rate, or set monetary amount per acre, is charged regardless of production practices, outcome, or crop yield. The producer can benefit from high yields, meaning he will pay a pre-determined rental amount; whereas a share tenant operator will have to allocate the rent as a percentage of his yield. Therefore, selecting the rent mechanism is a crucial step in structuring a farm management plan. The relative proportion of costs and returns from a rice share rental arrangement standpoint will determine the risk preference for both the grower and the landlord. Production costs paid by the landlord were higher on share rented lands than those tracts that were cash rented in the southwestern part of the state. The northeastern rice landlords did not share in the production expenses for either rent mechanism relative to the

magnitude of southwest growers, with the exception of averaging a quarter of the irrigation pumping costs on share rent arrangements.

By evaluating different share rental agreements and the degree in which production costs are shared, equitable crop rental arrangements can be achieved for all parties with a vested financial interest in the rice crop. Perhaps the most important step prior to signing a rental agreement is to determine the ways in which crop input costs and returns will be appropriated between tenant and landowner/landlord. Crop rental arrangements differ in terms of specific year(s) of land use, frequency and methods of payment, price and yield shares (i.e. risk allocation), sharing of production expenses, authority in making farm management decisions, rotational crop mapping, and adjustments made to price and yields relevant to conditions set forth by the market. A producer must consider his risk preference, current financial situation, technology adoption rate, resource proportionality being contributed, compensation for unused portion of investments, and management methods in order to determine what agreement is optimal while still remaining equitable.

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