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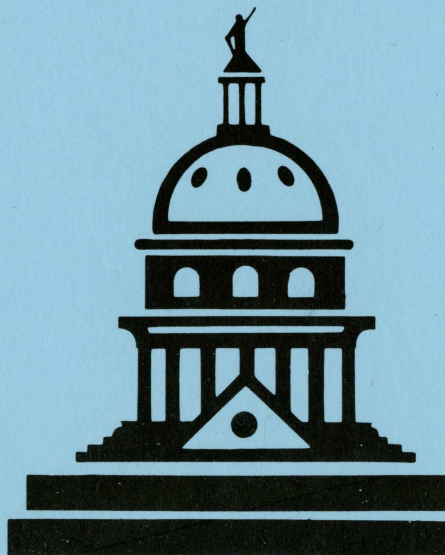
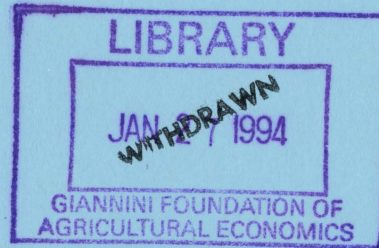
AFPC 91-13

POLICY WORKING PAPER

**IMPACT OF THE 50/92 PROGRAM
ON A REPRESENTATIVE WEST SIDE RICE FARM**

AFPC Policy Working Paper 91-13

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Texas Agricultural Experiment Station
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October 1991

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Introduction

For the past several years, rice producers participating in the annual acreage reduction programs have had access to an additional acreage reduction alternative known as "50/92". Under this program, producers could plant and harvest between 50% and 92% of acres "permitted" to be planted under the annual acreage reduction program while remaining eligible to receive deficiency payments on 92% of the permitted acreage. Prior to 1991, the 50/92 percentage was applied to the permitted acres determined by subtracting the acreage devoted to acreage conservation reserve (ACR) from the farm's crop acreage base (CAB) of rice. Beginning with the 1991 crop, however, that acreage is further reduced by a mandatory 15% of the CAB, an amount of acreage termed "normal flexible acreage" (NFA) (Food and Fiber Economics, Vol. 20, No. 1). While rice, other program crops, and eligible non-program crops may be planted on this NFA, that acreage earns no deficiency payments.

In addition to the 15% NFA, another 10% of the crop acreage base can be enrolled as "optional flexible acreage" (OFA). A rice farmer, therefore, may forego this option and plant rice on the OFA and continue to receive deficiency payments on the maximum payment acreage (CAB - ACR - 15% NFA), or plant an alternative crop on the OFA but relinquish deficiency payments on it. In either case, the OFA is considered planted to rice, and no adjustment to crop acreage base is required the following year if the producer flexes into an eligible alternative crop.

The legislation which established the 50/92 program gave the Secretary of Agriculture the discretion to implement 50/92 if an acreage reduction program is announced for any given crop

year. Depending on current stock levels of rice, the Secretary has the authority to set the acreage reduction requirement to as low as 0%. The Secretary could also announce that no acreage reduction program is in effect; but in doing so, he would likely eliminate eligibility for the 50/92 program and advanced deficiency payments.

The purpose of this working paper is to present the results of an analysis of the potential farm level impacts of dropping the 50/92 alternative option for Texas rice farms. Data maintained by the Agricultural and Food Policy Center (AFPC Working Paper 89-8) is used which defines a rice farm representative of the farms found on the west side of Houston. This representative farm has a rice CAB of 500 acres and is structured so that payment limits will not be restrictive.

A requirement of the 1991 rice program is that rice producers participating in the program devote 5% of the CAB (25 acres in this example) to acreage conservation reserve (ACR). In addition, while participating producers could plant rice on the remaining 475 acres, they are eligible to earn deficiency payments on only 400 acres (maximum payment acres), as 75 acres (15% of the CAB) is declared NFA and does not earn deficiency payments. Whether the producer actually plants the 75 acres of NFA to rice or to some other crop depends on the relative returns from these cropping alternatives.

In this example, the participating producer can plant fewer acres of rice, say 200 (50% of the 400 payment acres), and still receive deficiency payments on 368 acres (92% of 400). If the producer plants fewer than 200 acres, the 50/92 provisions no longer apply, and deficiency payments are paid on only those acres actually planted. If the producer, however, were to plant 300 acres, deficiency payments on 368 acres would still be earned since the planted acres fall between 50% (200) and 92% (368) of maximum payment acres. A farm operator's decision to

utilize the 50/92 alternative depends on a number of factors including expected prices, expected yields, and cost of production on the acres targeted for participation. In addition, other constraints such as a lack of resources (both physical and financial), landlord-tenure arrangements, and payment limit considerations should be factored into the 50/92 decision.

The remainder of this paper is devoted to estimating the impact of dropping the 50/92 program on the representative west-side rice farm. Before discussing that impact, however, it is important to note some of the characteristics of the representative farm, particularly those characteristics which bear on the 50/92 participation decision.

Representative Farm

The representative farm used in this analysis has 500 acres of rice crop acreage base. Of this base, 100 acres are owned by the operator, and 400 acres are leased under a share arrangement which returns 12.5% of the crop to the landlord. The landlord also pays a commensurate share of harvesting costs. The farm has a farm program yield of 5,600 pounds of rice per acre. When weighted by the lease sharing percentage and the amount of land leased, the operator receives deficiency payments on 5,040 pounds per acre ($5,600 \times 20\%$ owned + $5,600 \times 80\%$ leased x 87.5% share). Similarly, while the farm, on average, is expected to produce 7,040 pounds per acre ($5,600$ main crop + $1,600$ ratoon crop x 90% ratoon acreage), the operator's share is 6,336 pounds ($7,040 \times 20\%$ owned + $7,040 \times 80\%$ leased x 87.5% share). Based on historical farm stored loan rates for Texas, the quality of this rice is such that it receives about a \$0.30/cwt premium above the national loan rate when placed into the CCC loan program. As a consequence, while the national average loan is \$6.50/cwt, the rice from the representative farm would receive an average loan of \$6.80/cwt.

In producing this crop, the operator spends \$453/acre on variable pre-harvest operating inputs, while hauling, drying, storage, and sales commissions amount to \$1.73/cwt. To comply with the 1991 farm program provisions, the operator devotes 5% of the base, or 25 acres, to a conserving use. To satisfy the requirements of this conserving use, however, the operator must simply leave the land fallow. Consequently, no out-of-pocket expenses are assumed for this acreage. In addition, the operator has identified \$21,700 of "quasi-variable" whole farm costs associated with a full-time hired laborer and owning some selected items of equipment. These costs are "quasi-variable" since it is assumed that they could be avoided if acreage were substantially reduced over the long term through continued participation in the 50/92 program.

Another 15% of the land, or 75 acres, falls under the category of normal flexible acreage on which the operator could plant almost anything except fruits and vegetables. However, given limited economic alternatives, many typical operators simply plant and harvest rice on it or leave it fallow. Remember, the NFA receives no deficiency payments.

Finally, the operator has organized the farm in such a way that two "persons" are eligible to receive deficiency payments from it. As such, the farm could receive up to \$100,000 in deficiency payments, and up to \$150,000 in marketing loan benefits. With the assumed 500 rice CAB and the two "persons," payment limits are non-binding.

Basis for Analysis

Producers' 50/92 decisions can be made at the beginning of the crop year based on expectations and alternatives. Several scenarios are considered here so as to reflect the sensitivity of results to various decision parameters. Given the farm characteristics above, returns above variable costs were estimated for an expected yield of 64 cwt/acre at 11 different expected prices

for each program participation alternative (Tables 1 and 2). The second analysis reflected in Table 2 was conducted under the assumption that farmers have made a long-term commitment to 50/92 by disposing of the \$21,700 in quasi-variable expenses discussed above. In this case, the \$21,700 was excluded from the whole farm costs for only the 50/92 alternative.

Three program participation alternatives are shown in Tables 1 and 2; fallowing of the 5% ARP is assumed in all three alternatives. These three alternatives are:

- Max 95% The farmer plants maximum permitted acreage to rice (95% of base) but receives deficiency payments on only 80% of base.
- NFA 80% The farmer plants only the acreage on which deficiency payments are made. Normal flexible acreage (15% of base) is left fallow, accruing no variable costs or returns.
- 50/92 NFA 40% The farmer participates in the 50/92 program, but does not choose the optional flexible acreage program. All flexible acreage, acreage conservation reserve, and conserving use acreage are fallow, accruing no variable costs or returns. Conserving use acres are those additional acres of CAB that were not planted when the farmer entered the 50/92 program (another 40% of CAB in this example).

The two alternatives involving OFA were also considered:

- OFA 70% The farmer chooses to idle an additional 10% of base but devotes that optional flexible acreage to fallow, accruing no costs or returns.
- 50/92 OFA 40% The farmer participates in the 50/92 program, but opts to devote an additional 10% of the base to optional flexible acreage. This reduces the acreage on which deficiency payments are made but not the planted acreage. Again, all flexible acreage, acreage conservation reserve, and conserving use acreage are left fallow.

Numerical results for these latter two alternatives are not presented. In both cases, the results are inferior (lower net returns) to the corresponding NFA 80% and 50/92 NFA 40% options, respectively. These results are due to the loss of deficiency payments on the 10% OFA acreage and assumed fallowing (with no returns) of that acreage.

Two other significant factors impact on this analysis:

- National average price used in determining deficiency payment rates. Because of the quality of rice produced in this area, it was assumed that the national average price would be about \$0.30/cwt below the local price, and this relationship was fixed for all price levels.
- Adjusted world price used in determining CCC loan repayment rates and marketing loan benefits. It was assumed that the loan repayment rate would be about \$1.25/cwt below the local price, not to exceed the loan rate itself, and not to fall below \$4.85/cwt. This lower bound is determined as 70% of the national average loan (\$4.55) plus the local quality premium of \$0.30/cwt.

Results

The first set of results presented (Tables 1 and 2) are for the total farm, using a weighted 20% owned/80% rented acre as the basis for analysis. Subsequently, full ownership (Table 3) and full tenant (Table 4) situations are presented. Finally, sensitivity results for several of the important variables are presented (Table 5)¹.

Table 1 is an illustration of the net returns above variable costs for each program participation alternative described above at 11 different market price levels, assuming no impact on fixed costs.

¹**Caution:** An individual's decision regarding 50/92 should be made based on his/her specific circumstances. These results are conditional on the assumptions stated in this paper and should not be interpreted otherwise. Individuals wishing to analyze their own situations should obtain a copy of the AFPC's government program analyzer template.

The advantage of 50/92 relative to the non-50/92 alternatives is shown in the table's last column. The values in that column are determined as the returns to the 50/92 alternative minus the higher returns of the two non-50/92 alternatives. A positive value in this column indicates that the 50/92 alternative is preferred. At the expected yield of 64 cwt/acre, 50/92 is preferred at all price levels, although its greatest advantage occurs at low and moderately high prices. With market prices close to CCC loan level or particularly high, the relative advantage of 50/92 declines. The seeming inconsistency shown in the last column arises because of the relationships existing between market price, the national average price, the CCC loan rate, and the loan repayment rate.

At the highest expected cash price of \$10.00/cwt, 50/92 has only a \$541 advantage over planting the 475 maximum permitted acres. While this does not seem like a very great advantage, planting the extra 275 acres required to reach the maximum permitted acres would take an additional \$124,575 (275 acres x \$453 preharvest costs/acre) in preharvest operating capital. Different assumptions might result in 50/92 achieving lower returns than planting maximum permitted acres, but the difference in returns should be justified by the risk of committing additional operating capital.

Advantages to 50/92 participation may be greater if producers choose to downsize their capital investment in the farming operation by disposing of certain pieces of equipment or even full time hired labor. As a result, such producers will experience a reduced whole farm fixed expense. In Table 2 is shown the results of such an adjustment, where \$21,700 of annual whole farm expense associated with full time labor and machinery was subtracted from the variable costs of the 50/92 alternatives. This, in effect, decreases the costs per acre for 50/92, making it more advantageous. With this adjustment in the analysis, a significant advantage of 50/92 is shown in Table 2, regardless of price level. Farmers who have previously adjusted the size of their

operation due to 50/92 acreage levels would realize a large reduction in their incomes if 50/92 were not an alternative and they had to reacquire that \$21,700 in annual whole farm expense.

The analyses presented above are based around a farm which is a composite of owned and leased land. In actuality, farm operators can choose different program participation alternatives for each of the farms they operate. Therefore, to determine whether land ownership impacts the benefit of the 50/92 program, we conducted an analysis assuming the full 500 acres were owned (Table 3) or leased (Table 4) as independent operations. In both of these tables, no adjustments in fixed costs are assumed (i.e., the \$21,700 quasi-variable costs are retained for all program alternatives). The values in these tables, then, would be comparable to those in Table 1 for the composite farm.

As shown in Tables 3 and 4, the relative benefit of 50/92 is greater for the tenant than it is for the owner-operator. This result arises because the tenant gives up 12.5% of the crop and deficiency payments with no adjustment in his/her variable production expenses. As a result, the tenant's cost of production per unit sold is higher than that for the owner-operator (assuming no opportunity cost is attributed to the owned real estate or debt service requirement). As will be shown later, cost of production relative to income is one of the primary determinants of 50/92 benefit.

It is again recognized that not all rice farms in Texas are represented by the 500 acre rice farm used in this analysis. Each farmer experiences a different set of yields, costs, rice qualities, farm program yields, fixed resources, and other factors affecting farm profitability. Describing the farm in this study differently well may have resulted in a different conclusion regarding the benefit of the 50/92 program. In Table 5, some of these factors affecting the relative advantage of 50/92 are

shown. Starting with the values in Table 1 as a base, we adjusted several factors to a different level, and the relative advantage of 50/92 at three different prices resulted. In making these adjustments, we adjusted adjusted one at a time; therefore, the results represent the effects of just the single adjustment, all other factors held constant. A brief description of the effect of each factor follows:

- Yield. Increases in yield result in reduced advantages of 50/92, and vice versa. Therefore, if a producer expects higher than average yields, 50/92 may not be the preferred program participation alternative.
- Farm Program Yield (FPY). Interestingly, the impact of having a higher FPY depends on the expected market price. At low to medium prices, a higher FPY results in a slightly reduced 50/92 advantage. However, at high market prices, the higher FPY results in an increased 50/92 advantage.
- Formula Loan. If the quality of rice produced were particularly good, resulting in greater than a \$0.30 premium, the relative advantage of 50/92 would decline at the low and medium price levels. It would have no impact at the high price level, however, as there is no marketing loan benefit at this price level and the farmer would not benefit from placing the rice into the loan program in the first place.
- Acreage Reduction Program (ARP). Increasing the level of ARP would slightly reduce the 50/92 advantage at all price levels.
- Payment Limits. Reducing payment limits to where they become restrictive on deficiency payments results in an increased 50/92 advantage at the low and medium price levels. At a high price level, no impact is seen, as deficiency payments are not sufficiently large to be restricted by a single "person" payment limit.

- Costs of Production. The 50/92 advantage is particularly sensitive to the level of production costs, regardless of market price level. The higher the cost, the greater the benefit of 50/92 and vice versa.
- Premium Over World Price. At the low price, the minimum loan repayment rate prevents any additional marketing loan payment, so the 50/92 advantage remains constant. At the high price, the farmer receives no marketing loan benefit, so the 50/92 advantage is insensitive to the premium. However, at the medium price, the higher premium creates larger marketing loan benefits which accrue only to actual production. Therefore, 50/92 participants would not realize this full benefit.
- Quality Adjustment. A higher quality adjustment results in a higher local CCC loan rate. Any actual production may be placed in the loan at this higher rate. Since 50/92 has a reduced production level, it can only partially benefit from that higher loan. Therefore, the relative advantage of the 50/92 alternative is reduced.
- Flex Acre Income. At low and medium prices, this income accrues to both 50/92 and the preferred non-50/92 alternatives, resulting in no difference in 50/92 advantage. At the high price, however, the preferred non-50/92 alternative has no flex acres, so this income accrues only to the 50/92 alternative, thereby increasing its advantage.
- ACR/CUA Income. The 50/92 alternative creates conserving use acres, some of which receive guaranteed deficiency payments. Any income which can be generated on those acres adds to the 50/92 advantage. Conversely, any maintenance costs required on CUA would degrade that advantage.
- Expected Deficiency Payment. A benefit of entering the 50/92 program is that any deficiency payments earned on the conserving use acres (CUA) are paid at a minimum guaranteed rate equal to the USDA announced expected deficiency payment rate. As prices rise, regular deficiency payment rates decline, but those paid on CUA reach a minimum

guaranteed level. Therefore, at market prices higher than USDA expectation, the guaranteed rate becomes a very important benefit for 50/92 participants. Reducing this guaranteed rate, therefore, greatly reduces the relative benefit of 50/92 at the higher market prices.

Conclusions

The 50/92 program participation alternative appears to be beneficial for the West Side rice farm analyzed in this paper, particularly if the farmer is able to reduce some annual whole farm fixed expenses. Whether a farmer actually participates in the program may depend, however, on other factors not included in this analysis. The lack of a dependable water supply to produce rice on one's full rice CAB, age and condition of one's machinery complement, late planting impacts on yield, size and location of farm tracts, requirements of landowners, availability of operating capital, and attitudes toward risk weigh heavily on a farmer's decision and the result of that decision. The benefit of the 50/92 program, therefore, varies by individual farmer. Regardless of individual circumstances, however, the greatest benefit is likely the flexibility it provides farmers in making year to year decisions about program participation. By closely evaluating the expected prices, costs of production, expected yield levels, and other such factors, farmers can then choose the participation alternative which provides them the best potential for profit. Without a 50/92 program, the choices a farmer can make are much more limited.

Table 1

NET RETURNS ABOVE VARIABLE AND QUASI-VARIABLE COSTS AT VARYING PRICES AND PROGRAM ALTERNATIVES West Side Rice Farm, 1991 Farm Program Provisions <i>No Change in Quasi-Variable Costs</i>				
	Farm Program Alternative			
Price (\$/cwt)	Max 95%	NFA 80%	50/92 NFA 40%	Advantage of 50/92
\$5.00	\$6,824	\$15,606	\$32,600	\$16,994
\$5.50	\$22,024	\$28,406	\$39,000	\$10,594
\$6.00	\$37,224	\$41,206	\$45,400	\$4,194
\$6.50	\$40,264	\$43,766	\$46,680	\$2,914
\$7.00	\$36,232	\$39,734	\$42,970	\$3,237
\$7.50	\$26,152	\$29,654	\$35,813	\$6,160
\$8.00	\$16,072	\$19,574	\$30,773	\$11,200
\$8.50	\$19,672	\$21,014	\$31,493	\$10,480
\$9.00	\$24,792	\$23,734	\$32,853	\$8,061
\$9.50	\$29,912	\$26,454	\$34,213	\$4,301
\$10.00	\$35,032	\$29,174	\$35,573	\$541

Table 2

NET RETURNS ABOVE VARIABLE AND QUASI-VARIABLE COSTS AT VARYING PRICES AND PROGRAM ALTERNATIVES West Side Rice Farm, 1991 Farm Program Provisions <i>Adjusting Quasi-Variable Costs for 50/92</i>				
	Farm Program Alternative			
Price (\$/cwt)	Max 95%	NFA 80%	50/92 NFA 40%	Advantage of 50/92
\$5.00	\$6,824	\$15,606	\$54,300	\$38,694
\$5.50	\$22,024	\$28,406	\$60,700	\$32,294
\$6.00	\$37,224	\$41,206	\$67,100	\$25,894
\$6.50	\$40,264	\$43,766	\$68,380	\$24,614
\$7.00	\$36,232	\$39,734	\$64,670	\$24,937
\$7.50	\$26,152	\$29,654	\$57,513	\$27,860
\$8.00	\$16,072	\$19,574	\$52,473	\$32,900
\$8.50	\$19,672	\$21,014	\$53,193	\$32,180
\$9.00	\$24,792	\$23,734	\$54,553	\$29,761
\$9.50	\$29,912	\$26,454	\$55,913	\$26,001
\$10.00	\$35,032	\$29,174	\$57,273	\$22,241

Table 3

NET RETURNS ABOVE VARIABLE AND QUASI-VARIABLE COSTS AT VARYING PRICES AND PROGRAM ALTERNATIVES West Side Rice Farm, Owner Operated, 1991 Farm Program Provisions <i>No Changes in Quasi-Variable Costs</i>				
	Farm Program Alternative			
Price (\$/cwt)	Max 95%	NFA 80%	50/92 NFA 40%	Advantage of 50/92
\$5.00	\$32,214	\$38,399	\$47,957	\$9,558
\$5.50	\$48,844	\$52,479	\$54,997	\$2,518
\$6.00	\$65,564	\$66,559	\$62,037	-\$4,522
\$6.50	\$68,908	\$69,375	\$63,445	-\$5,930
\$7.00	\$64,428	\$64,895	\$59,324	-\$5,572
\$7.50	\$53,228	\$53,695	\$51,372	-\$2,324
\$8.00	\$42,028	\$42,495	\$45,772	\$3,276
\$8.50	\$45,876	\$43,967	\$46,508	\$632
\$9.00	\$51,396	\$46,847	\$47,948	-\$3,448
\$9.50	\$56,916	\$49,727	\$49,388	-\$7,528
\$10.00	\$62,436	\$52,607	\$50,828	-\$11,608

Table 4

NET RETURNS ABOVE VARIABLE AND QUASI-VARIABLE COSTS AT VARYING PRICES AND PROGRAM ALTERNATIVES West Side Rice Farm, Tenant Operated, 1991 Farm Program Provisions <i>No Changes in Quasi-Variable Costs</i>				
	Farm Program Alternative			
Price (\$/cwt)	Max 95%	NFA 80%	50/92 NFA 40%	Advantage of 50/92
\$5.00	-\$1,484	\$8,237	\$27,925	\$19,688
\$5.50	\$13,146	\$20,557	\$34,085	\$13,528
\$6.00	\$27,776	\$32,877	\$40,245	\$7,368
\$6.50	\$30,702	\$35,341	\$41,477	\$6,136
\$7.00	\$26,782	\$31,421	\$37,871	\$6,450
\$7.50	\$16,982	\$21,621	\$30,913	\$9,292
\$8.00	\$7,182	\$11,821	\$26,013	\$14,192
\$8.50	\$10,549	\$13,109	\$26,657	\$13,548
\$9.00	\$15,379	\$15,629	\$27,917	\$12,288
\$9.50	\$20,209	\$18,149	\$29,177	\$8,968
\$10.00	\$25,039	\$20,669	\$30,437	\$5,398

Table 5

IMPACT ON 50/92 ADVANTAGE OF CHANGES IN PARAMETERS At Different Price Levels <i>No Changes in Quasi-Variable Costs</i>			
Change in:	\$5.00/cwt \$16,994 Base	\$7.50/cwt \$6,160 Base	\$10.00/cwt \$541 Base
Yield: 64.0 → 70.4 cwt	\$10,312	-\$1,980	-\$14,014
FPY: 50.4 → 55.4	\$16,315	\$5,805	\$2,690
Formula Loan: \$6.80 → \$7.48	\$10,210	-\$2,544	\$541
ARP: 5% → 10%	\$15,932	\$5,775	\$363
Payment Limits: \$100K → \$50K	\$17,838	\$7,278	\$541
Costs: \$453 → \$498/acre	\$26,054	\$15,220	\$13,136
Premium: \$1.25 → \$2.00/cwt	\$16,994	-\$3,440	\$541
Quality Adj.: \$0.30 → \$1.00	\$9,954	-\$6,046	-\$6,515
NFA/OFA Income: \$0 → \$25/A	\$16,994	\$6,160	\$2,416
ACR/CUA Income: \$0 → \$25/A	\$21,995	\$11,160	\$5,541
Exp. Def. Pmt: \$3.76 → \$2.00	\$16,994	\$4,043	-\$14,361

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