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# ILLINOIS AGRICULTURAL ECONOMICS STAFF PAPER

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SUMMARY AND INTERPRETATIONS OF FOOD AND AGRICULTURAL  
ACT OF 1977 AND CROP PRODUCTION AND  
MARKETING PLANS FOR 1978

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SUMMARY AND INTERPRETATIONS OF FOOD AND AGRICULTURAL ACT OF 1977 AND  
CROP PRODUCTION AND MARKETING PLANS FOR 1978<sup>a/</sup>

PRIMARY CHANGES FROM THE 1973 ACT

Although within the same evolutionary development as the preceding legislation, the 1977 Act reveals changes and speaks to a broader scope of problems than the preceding 1973 Act. Some simply update sections in line with economic trends, such as raising the payment limitations roughly in line with the general price level. Significant changes in economic terms include the following:

1. GRAIN RESERVES. For the first time, public policy provides for a minimal continuing national reserve of grain, including 300-700 mil. bu. of wheat with the discretion of 3-5 year government-farmer held loans. Admittedly, this average 13 million metric tons is little more than the minimal 10 million ton reserve usually called for in advocacy proposals, but it stands as a departure from the past. Furthermore, the extended loan period and the detailed specifications of the resale price band, 140-175% of loan, signal policy changes.

2. FOOD STAMP PROGRAM. For the first time, the cash purchase requirement for food stamps for eligible recipients is eliminated. This should substantially increase the participation from the lowest income group, some of whom could never arrange to have the cash for the purchase and some were simply never comfortable putting down cash. However, it is also likely to reduce the actual food purchases of those using food stamps, since the cash purchase value previously used can now be partially or wholly diverted to nonfood consumption. In addition, changes in the Act relative to income eligibility standards, deduction procedures, and application processes are likely to increase benefits to the lower income recipients and decrease them for the higher income. Finally, a work requirement was added for appropriate recipients.

3. TARGET PRICE ESCALATION. Similar to existing policy, target prices for the covered crops for the final three years of the Act will reflect changes in the variable, machinery ownership, and general farm-overhead costs; however, the cost changes reflect a moving two-year average instead of one year and no adjustment is necessary to reflect yield changes. This will remove any moderating effect of productivity, but it will tend to smooth out the cost-induced alterations. The minimum "price support" levels for the wool deficiency payment program determined by the formula rate are considerably higher than the fixed 72¢ per pound level of recent years and are also likely to escalate. Although the compromise target price levels are substantially higher in absolute terms than those of the previous Act, as well as those of the abortive 1975 H.R. 4296, they appear generally on the same trajectory as though all of the cost increases since 1973 are built into the escalation to the present.

4. SOYBEAN LOAN. For the first time, a loan is mandated for soybeans, but the level is discretionary with the Secretary, who has held the entire authority in the past. This provides that office a margin of public support to use this policy instrument to achieve desired objectives of production and pricing in the feed-livestock sector.

5. SET-ASIDE AND ALLOTMENT BASE. For the first time, acreage bases on farm, except for peanuts, for purposes of determination of allotments, set-aside compliance, and target price payments shift from the previously used historic period to current or to the preceding year's planted acreage. This permits more flexibility in the private resource allocative process, facilitates shifts among producers, probably simplifies implementation at the local office level, but also probably complicates the discretionary decisions about the desired annual "package of policy instruments" and the prediction of results.

<sup>a/</sup> Staff Paper No. 77 E-28 prepared jointly by Royce A. Hinton and Robert G. F. Spitze, Department of Agricultural Economics, University of Illinois, for presentation at Crop Production Workshop held December 12-14, 1977 at the Illini Union, Urbana, Illinois.



6. NEW SUGAR, RICE, PEANUT PROGRAMS. A new departure in sugar policy is launched for 1977 and 1978 only, involving loans and purchases to maintain a minimum 13.5¢ per pound raw sugar price, which may be suspended if a future negotiated International Sugar Agreement insures the same price level. Provisions of the new 1975 Rice Production Act will be continued which folds this crop into existing price support, target price, and set-aside policy of the grains and cotton. A new peanut program moves away from the existing price support and mandatory allotment approach to a two-price support system involving "quota" and "additional" production.

7. EXPORT EMBARGO. Price supports must be raised to 90% of parity immediately for any normal export commodity with a loan program for which export suspension is instituted by the government. This should discourage administrative use of this trade policy.

8. AGRICULTURAL RESEARCH AND EDUCATION. Substantive changes are embodied in the Act for the funding, programming, and administration of federal and state agricultural research, extension, and teaching. The true impact must await interpretative and implementing decisions. Considerably higher levels of federal funding are likely for the life of the Act. It is suggested that this will largely flow through competitive grants, that more centralization of administration via USDA will occur, and that more emphasis will be directed to specified areas, such as human nutrition, small farmers, veterinary education, programs of 1890 Colleges, solar energy, extraction of alcohol from agricultural products, animal diseases, and promising scientific breakthroughs.

9. ADDITIONAL COMMITMENTS. Among various commitments of public purpose in the Act, which in some cases may result in significant policy changes are the following: (A) The President is encouraged to enter into negotiations with other nations to develop an International Emergency Food Reserve; (B) Congress reaffirms an historic policy to foster the family farm system of agriculture and directs the Secretary to submit annually a report on current trends in family farms, nationally and by states, and an assessment of the impact of existing public policy upon the family farm.

#### PRIMARY CONSEQUENCES OF THE NEW ACT

Detailed estimates of expected economic results of many of the alternative price and income policies being advanced were generated as the terminal date of the 1973 Act approached. Each new bill introduced precipitated yet another analysis, and as the specific House, Senate, and Administration proposals took shape, even more careful projections were drawn by USDA and Congressional staffs. These are a matter of record, many in professional literature previously cited. Yet, when the final compromise was struck, a unique "package of policy instruments" was created, for which careful analyses of consequences were not, and are not, available. That is a professional task ahead.

The consequences to ensue from the new Act are dependent upon the stated provisions, the interpretation and discretionary decisions to come, but equally as much upon the economic events yet to unfold surrounding the agricultural and food systems of the nation and world. These range from the actions of the oil producing nations to the weather in the North American Plains. Still, analyses completed are not for naught because the linkages between assumptions of economic conditions and expected results as to direction and magnitude are a payoff of the discipline. The precision of the correct futures must await the unfolding of history.

To capture general insights from this body of knowledge, one broadly characterized set of assumptions about the next few years of the life of the Act can be drawn. Its related consequences for *consumers*, *producers*, *traders*, and the *Treasury* then can be identified. This will also permit major deviations to be briefly tracked. Let us suppose the future will include the following assumptions:

(1) aggregate production of domestic agricultural products will continue at the average rate of approximately an increase of 1.8% per year of the past quarter century, during which some public production control prevailed for all years except the past three;

- (2) domestic population will increase at its average rate of this decade, .8% per year;
- (3) domestic income will increase at its average real rate of the past quarter century, approximately 2% per year, or a real demand increase of approximately .3% per year;
- (4) real net exports will increase aggregate demand approximately \$550 mil. (1977 dollars) per year or about .6% per year (about the average rate for the past one and a half decades excluding half of the unprecedented jump of net exports for 1972 and 1973);
- (5) variation in the world food and economic situation would continue but without the unusual convergence of events of this decade;
- (6) other demand trends and shifts would continue.

Thus, aggregate supply and demand for domestic agriculture would be approximately in balance with a modest degree of effective production control operative most of the time. It is clear that the direction and rate of change in farm output and in net exports are the significant balancing factors--and unknowns--in the near future.

Now, with these general assumptions, what might be expected in the general consequences in the short term--approximate five year--life of this Act, as compared to a future in the absence of any similar public price and income policy provisions, i.e., no policy?

CONSUMERS. Adequate food supplies will be available at price level trends slightly lower than the consumer prices in general with the proportion of their income spent for food gradually declining, but both of these levels slightly higher than with no policy. This difference arises from the production control-price support feature as well as the associated import restrictions. Low income consumers fare better with the food aid than with no policy. Finally, a national grain reserve, modest indeed, will ensure consumers a small degree of stability of food prices and supply.

If the growth of farm output exceeds the assumption, or net exports fall short, then the slight disadvantages of the policy to consumers are exacerbated and the advantage is diluted. If the growth in output is less or if the net exports exceed the assumptions, due perhaps to world food shortages, adverse effects on consumers generally will be cushioned slightly by the policy and low income consumers gain even more.

PRODUCERS. Farm product prices will likely exhibit their traditional variability, not unlike the relative levels of the decades of the 1960s, but the lower boundaries will be somewhat higher than with no policy. The minimal price support floors on the several crops, the food aid programs, and modest production control in most years will buoy the lower price edge. Livestock prices will be similarly affected through the braking effect of the combined supply control and price support policy. Considerable flexibility built into the production control features will permit shifts of resources as producers search for economic gains, but the mechanics of these allocative decisions will be somewhat restricted compared to no policy. This will result in some idled resources and an upward tendency on the real costs of production accompanied by downward pressure on productivity. On the other hand, the added stability of the policy will have a slight positive effect upon producer investment decisions and value of the farm asset structure.

Similarly, farmer income levels will continue to vary, but with the lower boundary likely in the 70-80% range of nonfarm incomes, somewhat higher than with no policy. This income floor will be a combination of the price supporting, the significant flow of Treasury transfers, the slow continual increase in scale and associated exodus of labor, and the continued growth of off-farm income marginally enhanced by released labor of the set-aside program. The distribution of income will be left relatively undisturbed with the larger wealthier producers receiving their share of the benefits proportional to the income already controlled.

If the increase in farm output exceeds the assumptions or net exports are less, the buoyancy of the Act upon producer prices and incomes will be even greater. On the other hand, if farm output lags behind, or net exports surpass the assumptions, then the range of

price levels and incomes will move above those triggering any intervention by the Act, similar to most of the life of the 1973 Act. In that sense the effects of the Act and of no policy would be indistinguishable. However, the upper peaks of both farm prices and income would be slightly blunted by the effect of the small reserves as they were released for both domestic and export use.

TRADE. Both commercial exports and imports will be slightly obstructed by the strengthened prices--and controlled production--of the Act compared to no policy. On balance net commercial export volume will probably suffer. Of course, some foreign markets are relatively insensitive to minor price changes, and some are sensitive to unrestrained sales and price competition. Exports to weaker markets dependent upon concessional sales or aid will be higher due to both the aid and the reserves compared to no policy. Furthermore, the regular foreign customer will experience a margin of supply security in the presence of modest reserves and the "embargo-restraint" provision, and may respond with a margin of market dependability.

If the farm output exceeds the assumption, or if exports are more sluggish, the negative influence for trade of the Act will be magnified. If, on the other hand, the farm output lags substantially or world shortages develop, exports and foreign food aid will be slightly enhanced by the modest reserves.

TREASURY EXPOSURE. Treasury transfers to both producers and aid recipients, domestic and foreign, will be substantial, compared with their essential absence under no policy. This takes no account of any secondary effects of the latter on substitute kinds of transfers. The transfers associated with the Act, with an admittedly large variance in prediction, will include: a likely annual range from \$1.0-\$1.5 bil. at the outset and \$2.5-\$3.5 bil. toward the end of the period for direct producer deficiency and disaster payments; a relatively flat \$5.5-\$6.2 bil. for domestic food aid; \$1.5-\$2.0 bil. for foreign food aid; and additional administrative, nonrecoverable loan, and service costs for these programs and the reserves (US GPO CBO Staff Working Paper). The producer payment portion of the Treasury costs as a percentage of total Federal outlays should not exceed--and probably not approach--those of the past fifteen (15) years up through 1974.

If the farm output exceeds the assumptions or exports lag, these costs will escalate. On the other hand, if the opposite unfolds, the producer transfers and substantial administrative costs would disappear while pressure could arise to increase food aid outlays.

Table 1. Summary of Provisions of the Food and Agriculture Act of 1977

ITEM	PROVISIONS	IMPLICATIONS
DURATION	Four years, 1978-1981.	Issues settled for few years.
FOOD DISTRIBUTION	Food stamp program continued. Maximum \$6.2 bil./yr. budgeted. Partial purchase requirement for stamps eliminated. Work requirement for able recipients to be eligible. Benefits reduced for high and raised for low income.	Slows cost escalation. Increases participation. Serves needy better. Simplifies administration. Attempts to reduce fraud.
Domestic	Women, infants, children (WIC) program continued.	Improves nutrition of pregnant women and infants.
Foreign	"Food for Peace," P.L. 480 continued. Requires more reporting of bids, payments, sales. Permits distribution of products not in "surplus."	Attempts to reduce fraud. Permits food aid in addition to just surplus disposal.
GRAIN RESERVES	Farmer-held reserve mandated with some discretion for Sec. 3-5 yr. extended loans available for grains. Wheat extended loan reserve must be 300-700 mil. bu. Reserve may be induced by free storage and interest. Farmer redemption of loans may be discouraged by penalty when prices below 140% loan, may be induced by fewer benefits when prices 140-160% loan, and forced when prices 175%. Govt. stocks resalable at 115% loan if no outstanding loans of that product; 150% otherwise.	Insures govt.-farmer controlled reserve for security of consumer, export market, and aid. Permits recall loans and resale govt. stocks during high prices and low reserves. Reduces high and low extremes of farm prices.
COMMODITIES	Price support (non-recourse loan), minimum:	Increases stability of producer and consumer food prices.
Wheat	1977 — \$2.25/bu. 1978-81 — \$2.35/bu. (may be lower by 10%/yr. to \$2.00 if supplies heavy)	Results in stocks and possible reserves. Raises minimum export prices and provides stocks for possible exports.
	Target price assures national aver. return on planted acres within farm allotment to producers meeting any set-aside and other conditions:	Maintains minimal producer incomes at levels somewhat related to rising costs of inputs. Results in variable govt. payments to producers.
	1977 — \$2.90/bu. 1978 — \$3.05/bu. (1.8 bil. bu. harvest or less) — \$3.00 (more than 1.8 bil. harvest) 1979-81 — escalates with rise in variable costs.	
	Set-aside out of current year's planted and normal crop acreage may be a condition for benefits: 1978 — 20% set aside (by Secretary of Agriculture)	Reduces large supplies relative to demand by voluntary action.
	Disaster payments available 1978-79 if plantings prevented and yields low due to natural occurrences.	Govt. payments reduce producer risk due to nature.
Corn (support on other feed grains proportional)	Price support (non-recourse loan), minimum: 1977 — \$2.00/bu. 1978-81 — \$2.00/bu. (as wheat, may be lowered to \$1.75)	Implications are same as for wheat, with price support also increasing stability of livestock prices.
	Target price (same conditions as for wheat) 1977 — \$2.00/bu. 1978 — \$2.10/bu. 1978-81 — As wheat, will escalate with costs.	
	Set aside out of current year's planted and normal crop acreage may be a condition for benefits.	
	Approach to disaster payments same as for wheat.	
Soybeans	Price support only, minimum: 1977 — \$3.50/bu. (by Secretary of Agriculture) 1978-81 — Loan mandated but level at discretion of Sec.	Same as for corn, but no minimum mandated.
Cotton, rice, peanuts, sugar	Price support loans, target prices and/or set-aside established for each commodity	Effects similar to above but vary with combinations.
Payment limitations	Combined wheat, feed grain, cotton target payments limited (rice higher): 1978 — \$40,000; 1979 — \$45,000; 1980-81 — \$50,000	Inducement for large producers to set aside is proportional to height of limit — and so are equity concerns.
Dairy	Price support dairy products continued, minimum: Until March 31, 1979 — 80% to 90% parity After March 31, 1979 — 75% to 90% parity Adjusted semiannually through March 31, 1981.	Same as for wheat, but effects are more direct to food consumers.
Wool and mohair	Price deficiency payments continued for all production at 85% of formula rate (figures at about 99¢/# for 1977).	Govt. payments to producers. Less dependence on imports.
RESEARCH AND EXTENSION	Funding ceiling increased for 5 years, emphasis on competitive grants, USDA lead role, human nutrition, veterinary schools, small farm help, 1890 colleges, solar energy, alcohol extraction, advisory groups roles.	Increases food and agriculture funds, relying more on grant approach and centralized administration.
ADDITIONAL ITEMS	Secretary must raise price support to 90% parity upon suspension of normal exports of product with loan program.	Discourages public disruption of commercial exports.
Export embargo	Secretary may have multi-year set-aside contracts for feed grains, wheat, cotton.	Encourages permanency, conservation, sediment control.
Multi-year set-aside (if necessary)	Loans for farm product drying, storage, and handling.	Encourages loans and reserves.
Farm storage	Funding eased for major soil conservation projects.	Encourages erosion control.
Conservation	Funding for grain inspection supervision.	Facilitates new program.
Grain inspection		

## 78-1/Food and Agricultural Act of 1977 and Crop Production and Marketing Plans for 1978

Although you may have already taken steps to carry out your long-run crop plans, it could be profitable to take careful look at prices and costs and at the provisions of the new farm program--The Food and Agricultural Act of 1977--to see whether some changes should be made in your cropping program for 1978.

There are three major decision areas, the:

1. Kind and amount of each crop to grow, including the acreage to leave idle.
2. Amount and kind of production inputs to use--fertilizer, herbicides, insecticides, and others directly related to yields.
3. Marketing program to follow scheduling the time or times of pricing, delivery, and sale.

### 1978 PROGRAM PROVISIONS FOR FEED GRAINS AND WHEAT

The recently passed Food and Agricultural Act of 1977 covers the 1978-1981 crops. The new act provides for target price supports, loan and purchase programs, and disaster payments. The set-aside programs for feed grains to be placed in effect for 1978 are still conditional and will be until late January, but the Secretary of Agriculture has announced the following general intentions which can serve a basis for planting.

**NORMAL CROP ACREAGE BASE.** To be eligible for payments and loans, your total acreage planted with qualifying crops in 1978 cannot exceed your normal crop base, minus your set-aside acres. The total of qualifying crops for the normal crop acreage (NCA) will be calculated for your farm based on your 1977 plantings. You are responsible for reporting your 1977 crops to your county ASCS office to establish the NCA base for your farm; otherwise, your NCA base will be zero. Be watching for the announcement of information about the cutoff date for reporting last years crop acreage and the appeal procedures.

**SET-ASIDE.** To be eligible for loans, purchases, and deficiency or disaster payments for wheat, you must set aside an acreage equal to 20 percent of the wheat acreage to be harvested. Also, the total acres of all harvested crops plus those set-aside cannot exceed your NCA base. For corn and other feed grains, the set-aside crop land is an acreage equal to 10 percent of the acreage to be harvested in 1978. The set-aside land is to be crop land that has been tilled within one or more of the last three years. A vegetative cover must be planted on the set-aside acreage. The set-aside acres need not to be of equal productivity to those you plant, only ones normally cropped. You will need to check your county ASCS office for the exact specification about the acres to qualify for set-aside purposes.

**TARGET PRICES AND LOAN RATES.** For wheat, a target price of \$3 per bushel and a national loan rate of \$2.35 will be in effect if total U.S. production exceeds 1.8 billion bushels. If the figure is less than 1.8 billion bushels, the result will be a target price of \$3.05 per bushel.



For corn, the target price will be \$2.10 and the national loan rate \$2 per bushel. The national average loan rates per bushel for other crops are set at \$1.90 for sorghum, \$1.03 for oats, \$1.63 for barley, and \$3.50 for soybeans.

**TARGET-PRICE DEFICIENCY PAYMENTS.** The deficiency payment in relation to the target price for each crop will be based on the difference between the target price and the first five-month national average price received by farmers, but will not exceed the difference between the target price and the national loan rate. There may be two levels of deficiency-payment rates for each crop.

The first level would be a rate of 80 to 100 percent received by producers who meet the minimum set-aside and normal crop-acreage provisions, depending on the allocation factor. That factor for each crop will be established by the relation to the national program acreage designated by the Secretary of Agriculture as needed to meet domestic and normal exports to the actual estimated harvested acres, that is, the actual number of acres divided by the number of program acres. National program acreages in millions of acres are 58.7 for wheat, 67.6 for corn, 13.7 for sorghum, and 7.4 for barley.

The second level would be full target-price deficiency payments (100 percent) available to producers who reduce their planting of corn by 5 percent; sorghum, 5 percent; wheat, 20 percent; and barley, 20 percent. These reductions must be below last year's acreage for those crops. Farmers are required to meet all other conditions for participation. Both the full and partial target-price guarantees apply only to the normal production on the crop acreage grown. Producers must plant and harvest the crop in order to be eligible for deficiency payments, except when preventing from doing so by a disaster.

**LOANS AND PURCHASE AGREEMENTS.** Loans and purchase agreements will be available to eligible producers for the entire actual production harvested of each crop. The maturity period on the loan and purchase agreements for 1977 and 1978 crops has been reduced to 9 months, compared to the 11-month period used for 1976 crops. At maturity, grain under loan may be delivered and forfeited to the Commodity Credit Corporation, or the loan may be redeemed at any time by repaying the amount of the loan plus accumulated interest at 6 percent.

**DISASTER PAYMENTS.** For both wheat and feed grains, the payment for prevented plantings is 1/2 of the target price on 75 percent of the normal yield. The payment for low yields is 50 percent of the target price on the shortfall below 60 percent of the normal yield for all acres planted with the particular crop.

**OFFSETTING AND CROSS COMPLIANCE.** On the same farm, cross compliance between crops is required in order to be eligible for loans, purchases, and deficiency or disaster payments on any or all of the applicable crops included in the normal crop acreage for the farm. Offsetting compliance with set-aside and NCA is required on all farms for which the producer is the farm operator or is an owner.

**GRAIN RESERVES.** The new program permits the Secretary to expand the reserve program for farmer-owned wheat and rice to include feed grains. Farmers with loans on grain with the CCC will be able to extend their loans for three to five years.

The provisions for 1977 and for future grain-reserve programs have not been announced. For continuing to store 1976 wheat, farmers earn 20 cents per bushel annually. The primary requirement for a farmer who participates in the extended loan program for wheat is that he agrees to hold the grain until the national average price reaches 140 percent of the wheat loan.

#### CROP PRODUCTION STRATEGIES

You can determine the effect of different crop combinations (land use) and of participation in the wheat and feed-grain programs on your 1978 farm income by making estimates of the costs and returns for each crop alternative. To prepare these, you will need to make three major judgments in terms of what you expect: (1) yields; (2) variable costs of production; and (3) market prices. These are based on the information you have at any given time. Past experience is helpful, but you must also look ahead.

For corn, the target price will be \$2.10 and the national loan rate \$2 per bushel. The national average loan rates per bushel for other crops are set at \$1.90 for sorghum, \$1.03 for oats, \$1.63 for barley, and \$3.50 for soybeans.

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You can determine the effect of different crop combinations (land use) and of participation in the wheat and feed-grain programs on your 1978 farm income by making estimates of the costs and returns for each crop alternative. To prepare these, you will need to make three major judgments in terms of what you expect: (1) yields; (2) variable costs of production; and (3) market prices. These are based on the information you have at any given time. Past experience is helpful, but you must also look ahead.

**YIELDS.** Check your recent farm records. Base your projected target yield on typical or average yields, but also look at trends. Don't expect future years to be like the situation last year.

**COSTS.** The typical costs of producing various crops are listed in Table 1. Use the data in the table as a guide for estimating the variable costs for the crops you expect to grow.

**MARKET PRICES.** The next step is to estimate the prices you expect to receive from the grain you sell on the market or place under loan. After this, you can determine the estimated gross returns from crops you plan to raise. The prices used in Table 2 are the ones expected from storage in 1979. They assume that supplies of wheat and feed grains will remain abundant, but with enough participation in loan programs so that the market prices will be near the loan levels. The actual supplies for the marketing year of 1978-79 will be influenced by the extent to which farmers participate in the set-aside programs and by changes in domestic and export demand. Consequently, these price relationships and levels may change as future information becomes available. The prices of crops grown with qualifying set-aside acreages assume a national average loan rate of \$2 per bushel and a target-price deficiency payment of 10 cents for corn; also, a \$2.35 loan rate and a target-price deficiency payment of 52 cents (3.00 - 2.35 x 80%) for wheat. You can use your county loan rate; however, the amount of the target-price deficiency payment per bushel produced on your farm will depend on the allocation factor and the normal production to which the target price applies.

**COMPARING ALTERNATIVES.** Table 2 is a summary of cost-and-return budgets for comparing alternatives, in order to help you decide which crops to grow in 1978. The new procedure for calculating set-aside acreage requirements makes it easy to compare your net return for participation in the wheat and feed-grain programs with non-participation. The set-aside acreage is proportional to acres you plant--10 percent for corn and 20 percent for wheat. One acre of a crop can be looked at along side the combination of 0.833 acre of wheat and 0.167 acre of set-aside, or 0.909 acre of corn and 0.091 acre of set-aside. This comparison assumes that the quality of the land in the set-aside acreage is equal to that of land used to grow crops. The net returns over typical variable costs incurred through storage in 1979 are calculated for a wide range of yields when complying or not complying with the proposed set-aside requirements of the new wheat and feed-grain program.

In your situation you may wish to make a different analysis, especially if you do not have grain storage on the farm. In that case, to evaluate returns for participation in the set-aside program, the variable costs of storing grain commercially would have to be recognized. Or, you may want to use the futures market to set the futures prices for grain to be delivered at harvest time. If so, use current futures contract prices at the time of delivery for your analysis.

Another way to analyze the crop decision between corn and soybeans is to estimate the breakeven profit points. Basically, the model for calculating the breakeven points assumes that the net returns for the two crops are equal.

120 bu. of corn @ \$2.00 less \$93 cost = 40 bu. of soybeans @ \$4.87 less \$48 cost  
\$240 - 93 = \$195 - 48  
\$147 = \$147

The ratios for breakeven prices are influenced by the level and relationship of the crop yields and the difference in costs of production. Using the breakeven procedure described above, the \$45 cost difference between second-year corn and soybeans, three varying corn-soybean yield relationships, and four prices of soybeans, the breakeven prices for corn are shown in Table 3.

Given an estimated 1978 price for corn of \$2 a bushel, the breakeven corn prices in Table 3 also can indicate situations where soybeans may be more profitable than second-year corn. When corn yields are only 2.5 times the soybean yields (120 vs. 48), the price of soybeans must be above \$4 per bushel in order to make beans more profitable than corn. When corn yields are 3 times as great as soybeans (120 vs. 40), the expected soybean price must be \$4.88 a bushel or better. When corn yields are 3.5 those for soybeans (120 vs. 34), the soybean price must be greater than \$5.73 a bushel.

TABLE 1. ESTIMATED COSTS PER ACRE FOR PRODUCING CROPS IN 1978

	Rotated Corn (120 bu.)	Second Yr. Corn (120 bu.)	Soybeans (40 bu.)	Wheat (45 bu.)	Oats (80 bu.)	Set-aside cover crop	Double-crop Soybeans (20 bu.)	Alfalfa Hay (4.5 tons)
<b>Non-land costs</b>								
<b>Variable costs:</b>								
Seed . . . . .	\$ 10	\$ 10	\$ 8	\$ 5	\$ 4	\$ 3	\$ 10	\$ 7
Pesticides . . . . .	10	15	10	1	1	---	20	5
<b>Fertilizer</b>								
N . . . . .	22	28	---	15	10	---	---	---
P-K . . . . .	12	12	12	9	6	---	6	28
Lime . . . . .	2	2	2	2	2	2	---	3
Machinery repairs & fuels	19	19	16	12	12	2	8	23
Drying fuels & repairs . . .	7	7	---	---	---	---	---	---
<i>Total variable costs . . .</i>	<i>\$ 82</i>	<i>\$ 93</i>	<i>\$ 48</i>	<i>\$ 44</i>	<i>\$ 35</i>	<i>\$ 7</i>	<i>\$ 44</i>	<i>\$ 66</i>
<b>Other non-land costs</b>								
Machinery depreciation . .	\$ 26	\$ 26	\$ 20	\$ 16	\$ 15	\$ 10	\$ 12	\$ 30
Labor . . . . .	24	24	24	15	14	5	15	34
Interest on stored crop . .	10	10	8	5	3	---	4	10
Buildings and misc. . . . .	22	22	15	15	15	11	8	20
<i>Total other . . . . .</i>	<i>\$ 82</i>	<i>\$ 82</i>	<i>\$ 67</i>	<i>\$ 51</i>	<i>\$ 47</i>	<i>\$ 26</i>	<i>\$ 39</i>	<i>\$ 94</i>
<i>Total non-land costs . . .</i>	<i>\$164</i>	<i>\$175</i>	<i>\$115</i>	<i>\$ 95</i>	<i>\$ 82</i>	<i>\$ 33</i>	<i>\$ 83</i>	<i>\$160</i>
Land costs (cash rent) . .	\$100	\$100	\$100	\$100	\$100	\$100	---	\$100
<i>Total all costs . . . . .</i>	<i>\$264</i>	<i>\$275</i>	<i>\$215</i>	<i>\$195</i>	<i>\$182</i>	<i>\$133</i>	<i>\$ 83</i>	<i>\$260</i>

TABLE 2. COMPARISON OF CROP RETURNS FOR 1978

CROPS	Production per acre	Price	Gross returns per acre	Variable costs per acre	Returns over variable costs per acre
<b>Corn</b>					
1 acre @ 90 bu. . . . .	90.0	\$ 1.90	\$171	\$ 66	\$105
.909 acre @ 90 bu. + .091 acre set aside	81.8	2.10	172	63	109
1 acre @ 120 bu. . . . .	120.0	1.90	228	82	146
.909 acre @ 120 bu. + .091 acre set aside	109.1	2.10	229	78	151
1 acre @ 150 bu. . . . .	150.0	1.90	285	106	179
.909 acre @ 150 bu. + .091 acre set aside	136.4	2.10	286	101	185
<b>Soybeans</b>					
1 acre . . . . .	30	5.00	150	42	108
	40	5.00	200	48	152
	50	5.00	250	60	190
<b>Double-crop soybeans after wheat</b>					
1 acre @ 15 bu. . . . .	15	5.00	75	41	34
.833 acre @ 15 bu. + .167 acre set aside	12.5	5.00	62	38	24
1 acre @ 20 bu. . . . .	20	5.00	100	44	56
.833 acre @ 20 bu. + .167 acre set aside	16.7	5.00	84	41	43
1 acre @ 25 bu. . . . .	25	5.00	125	48	77
.833 acre @ 25 bu. + .167 acre set aside	20.8	5.00	104	45	59
<b>Wheat</b>					
1 acre @ 36 bu. . . . .	36	2.25	81	37	44
.833 acre @ 36 bu. + .167 acre set aside	30	2.87	86	34	52
1 acre @ 45 bu. . . . .	45	2.25	101	43	58
.833 acre @ 45 bu. + .167 acre set aside	37.5	2.87	108	39	69
1 acre @ 54 bu. . . . .	54	2.25	121	50	71
.833 acre @ 54 bu. + .167 acre set aside	45	2.87	129	46	83
<b>Oats</b>					
1 acre . . . . .	67	1.10	74	31	43
	80	1.10	88	35	53
	100	1.10	110	40	70
<b>Hay</b>					
1 acre . . . . .	3.0	50.00	150	78	72
	4.5	50.00	225	100	125
	6.0	50.00	300	125	175

TABLE 3. BREAKEVEN PRICES OF CORN

<i>Price of soybeans per bushel</i>	<i>Ratio of corn to soybean yields per acre</i>		
	<i>120 and 48</i>	<i>120 and 40</i>	<i>120 and 34</i>
\$4.00 . . . . .	\$1.98	\$1.71	\$1.51
4.50 . . . . .	2.18	1.88	1.65
5.00 . . . . .	2.38	2.04	1.79
5.50 . . . . .	2.58	2.21	1.93
6.00 . . . . .	2.78	2.38	2.08

To complete the evaluation of crop alternatives, the differences in prices received, reductions in variable costs, as well as other items need to be considered, such as the capacity of your labor and machinery to complete field operations on time, availability of grain storage, grain needs for your livestock, weather variability, and importance of disaster insurance, quality of land available for set-aside, and availability of cash through loan or from the grain you store soon after harvest.