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CROP PLANNING FOR 1971

Which Crops Should I Grow?
Wheat Program Participation?
Feed Grain Program Participation?

Prepared By Extension Economists

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The information in this publication is designed to help individuals to plan their most profitable crop program for 1971. Crop selection decisions deserve added attention this year because of the 1970 corn blight and the new farm program.

To decide on your most profitable crop program you need information of the type covered in each of the sections of this report.

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THE 1971 SET ASIDE PROGRAM*

The sign up period for the 1971 feed grain and wheat program is March 1 - April 9. Participation in the program is voluntary. Farmers who participate become eligible for both price support loans and certificate or price support payments. Farmers who choose not to participate have no restrictions on land use but are not eligible for loans or payments.

The "set aside" is the main ticket of admission to participation in the program. Under the set aside, farmers agree to shift crop land acres to approved conservation uses. Participating farmers must also maintain their conserving base acres.

The "set aside" permits the grower a greater choice in cropping patterns than did the acreage diversion and allotment program of recent years. Having met the set aside requirements, participating farmers are free to plant whatever they wish on their remaining acres (except for quota crops such as sugar beets). Thus, the set aside program is designed to adjust crop land acres but there is less direct control on the planting of individual crops than under the old programs.

1971 Feed Grain Provisions

Under the new feed grain program the feed grain base remains substantially the same as last year. Participating farmers will be required to set aside to conserving uses an acreage equal to 20 percent of their feed grain base, in addition to maintaining their conserving base acreage. Additional diversion for payment will not be available and barley will not be included in the program this year.

Feed grain growers who sign up under the feed grain program will be eligible for a loan on all of their feed grain production. In Minnesota this will average about $1.00 per bushel for No. 2 corn. In addition, they will be entitled to a price support payment on their normal production from one-half of their feed grain base acres. A preliminary payment shall be made as soon as possible after July 1 and shall be based on a payment rate of 32¢ per bushel. An additional payment shall be made later if the total of 32¢ per bushel plus the July-November national average market price falls short of the greater of either $1.35 per bushel or 30 percent of the corn parity price on October 1. However, should the preliminary payment plus the July-November market price exceed these two measures, no refund by producers will be required.

One matter a feed grain grower must consider is maintaining his base history. Failure to comply with planting requirements might result in a loss of feed grain base. If less than 45 percent of a feed grain base is planted to feed grains or an authorized substitute, the 1972 base will be reduced by the amount of the underplanting up to 20 percent of the base. Failure to plant feed grains for three consecutive years might result in loss of the entire feed grain base. However, under the following conditions no loss of feed grain base would take place:

1. The producer elects not to be paid for the underplanting acres;
2. The producer can't plant because of natural disaster;
3. An equivalent acreage of wheat is substituted for feed grain, provided the farmer is signed up under both programs.
4. The farmer certifies that he is unable to get enough seed corn to meet planting requirements.

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* This summary of the 1971 wheat and feed grain programs is intended as a general description of program requirements as farmers evaluate their alternatives under the program. It should not be construed as a precise statement of compliance requirements.

1971 Wheat Provisions

Wheat growers who set aside acres equal to 75 percent of their domestic wheat allotment, in addition to their conserving base acres, are eligible for program benefits. Diversion of additional acreage for payment will not be available in 1971.

The domestic wheat allotment used this year is the number of acres, on a nation wide basis, required to supply domestic food use. Since the estimate of food use may not be below a floor of 535 million bushels, the domestic wheat allotment for 1971 is about 43% of the wheat allotment under the 1970 program. Thus, though the percentage figure for the set aside may seem large, the acres to which it is applied is reduced.

Wheat growers who abide by the set aside and other program provisions are eligible for non-recourse loans on their wheat at a national average of $1.25 per bushel. In Minnesota this average is about $1.35 per bushel. In addition, growers receive wheat certificates on the normal yield from their domestic wheat allotment. The wheat certificates shall have a face value of the difference between the July-November national average market price and 100% of parity. So, in effect, the return per bushel on the growers' domestic allotment acres shall be the parity price. Parity during recent months has been about $2.85 per bushel.

A preliminary payment of 75% of the estimated final value of wheat certificates shall be made as soon as practicable after July 1. The balance of the payment, if any, shall be made after December 1. Should the preliminary payment be greater than the final certificate value proves to be, no refund by producers will be required.

Maintaining base history is an important consideration for wheat, just as for feed grain. For the most part, the same rules apply. Wheat growers who fail to plant at least 90% of their domestic allotment or an authorized substitute may have their allotments reduced by up to 20%. If no wheat is planted for three consecutive years, the entire allotment can be lost. Exceptions to the loss of allotments due to underplanting are:

1. The grower elects not to receive marketing certificates for underplanting;
2. Natural disaster prevents the grower from planting;
3. An equivalent acreage of feed grain is substituted for wheat.

Some Additional Requirements

Set aside acres must be protected against erosion, weeds, insect damage and rodents.

Farmers who devote at least 55 percent of their crop land to summer fallow are not required to set aside any additional acreage in order to participate in the 1971 program.

A maximum payment per person of $55,000 per year is in effect for each commodity under the 1971 program. This limitation applies to payments through marketing certificates, price support payments, and public access payments, but does not include commodity loans or purchases.

Cost of certificates to processors of wheat for domestic food use will continue at 75¢ per bushel.

The CCC sales price for its wheat and feed grains may not be less than 115 percent of the national average loan rate adjusted for factors such as grade, quality and location.

ASCS DATA

Each farmer will receive a notice of allotment, base acreage, yields and rates from his local ASCS office that looks like the following example which contains Minnesota average yield figures for corn and wheat.

Crop and Allot. or Base (Acres)	Yield (Bu)	Preliminary Payment Rate ($)	
A. Corn 100	77	24.64	
B. Grain Sorghum			
C. Barley			
D. Total Feed Grain 100			Set Aside 20
E. Wheat 100	33	39.60	75
G. Conserving Base			15

If the farmer in this example, with a total of 320 acres, decides to sign up for both the feed grain and wheat programs he must set aside 95 acres (20 acres-feed grain and 75 acres-wheat) in addition to his 15 conserving base. He could then plant his remaining 220 acres in any combination of crops he wishes. In addition to being eligible for commodity loans, he would be eligible for price support payments on 50 percent of his feed grain base and certificate payments on 100 percent of his domestic wheat allotment acres. The preliminary rates of payment on a per acre basis (yield x preliminary payment per bushel) are shown in the table (and would apply to 50 acres of corn and 100 acres of wheat). He could grow as much corn or wheat as he likes but as a minimum his combined plantings of corn and wheat must be 135 acres (45 percent feed grain base, 90 percent domestic wheat allotment). Failing to meet this requirement he will have his base reduced next year unless he elects not to receive payment this year.

If the farmer chooses to sign up for the feed grain program and not the wheat program he would set aside 20 acres in addition to his 15 acres conserving base. He could then plant his remaining 285 acres to any combination of crops he wishes. He would be eligible for loans on his corn but not on his wheat. He would be eligible for price support payments on 50 percent of feed grain base, but he would not be eligible for wheat certificates. He must plant a minimum of 45 acres of corn or have his feed grain base reduced next year unless he elects not to receive price support payments for his underplanting.

EXPECTED CROP YIELDS [1/]

Southern corn leaf blight (SCLB) has introduced more than usual uncertainty in corn yield expectations and crop acres for 1971. Since soybeans and corn are substitutes in most of the Corn Belt, soybean acreage is also uncertain.

No one can predict the 1971 severity of SCLB. Its development requires a combination of susceptible corn plants, warm humid weather, and presence of the pathogen. In heavily infected areas in 1970, there was roughly a 40 percent yield reduction in susceptible fields. In 1971, elements of the pathogen will be present and there will be susceptible corn plants. No one can say whether the 1970 weather combination of wind, temperature, and humidity will again occur in 1971 to cause rapid growth and spread of SCLB Good corn weather is apt to produce some blight development. Minnesota crop losses from SCLB in 1971 may about equal the estimated 1 percent loss in 1970.

Generally, we think there are good prospects for record-breaking Minnesota corn yields in 1971. Other crop yield expectations also appear normal. Therefore, each farmer should make his own analysis of relative yield expectations on his farm, given his resources.

EXPECTED PRODUCTION COSTS

Overhead costs such as land, taxes and machinery depreciation will continue even if some acreage is put in the set-aside. Therefore, when analyzing the effect of program participation for one year, only those costs that vary directly with acres planted need be considered. The following table lists these cost items and shows typical cost structures for different areas of the state. Adjust these to fit your crop program.

Typical Variable Costs Per Crop Acre

	Southern Minnesota				Northwestern Minnesota			
Item	Corn	Beans	Oats	Hay	Wheat	Barley	Beans	Corn
Seed	5.00	4.00	3.00	4.00	4.00	3.00	3.00	4.00
Fertilizer	14.00	2.00	3.00	3.00	7.00	5.00	2.00	10.00
Chemicals	7.00	4.00	-	-	1.00	1.00	4.00	4.00
Insurance	2.00	1.00	1.00	-	2.00	2.00	1.00	2.00
Fuel and Oil	4.00	3.00	2.00	6.00	2.00	2.00	2.00	3.00
Machine Repair *	4.00	3.00	3.00	6.00	2.00	2.00	2.00	3.00
Interest	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hired labor or Custom Work	-	-	-	-	-	-	-	-
Other (twine)	-	-	1.00	3.00	-	-	-	-
Total	38.00	18.00	14.00	23.00	19.00	16.00	15.00	27.00
My Costs								

* If program participation is expected to decrease the annual depreciation of some machines, this cost should also be added to the variable machine cost.

[1/] This section was developed in cooperation with Dale Hicks, Extension Agronomist and Herbert Johnson, Extension Plant Pathologist.

EXPECTED GRAIN PRICES

As the spring planting decision approaches, one must consider whether present price levels are appropriate for planning the 1971 crop. A predicted 1971 crop price is essentially an estimate of the price that will balance crop utilization with production plus carryover stocks. Price projections should be taken as approximations, bearing in mind that high trading interest can have substantial short-run impact, altering prices up or down from levels consistent with past market relationships.

Corn

Present rate of feed grain utilization is high. Exports have been good and livestock numbers are up. On January 1, 1971 there were estimated to be 19 percent more hogs and 2 percent more cattle than a year earlier. Poultry numbers are also up. The USDA now estimates a 650 mil. bu. carryover into the new crop year beginning October 1, 1971. This will be much lower than the 1,100 mil. bu. average of the past 6 years. However, if feed grain prices remain high, livestock feeding will decline, rate of 1971 crop utilization will be down and October 1 carryover will be higher.

Projections of the 1971 crop are very uncertain. On the basis of estimated seed supplies and acreage intentions, the 1971 corn crop could be in the 4.5 to 4.8 billion bushel range. The USDA's January 1 preliminary planting intentions survey reported that farmers were thinking of planting 70.1 million acres. This would be 6 percent more than in 1970. Some growers in areas hit by the 1970 blight stated their intentions were contingent on obtaining blight-resistent seed. Total corn seed supply for 1971 has been estimated by the USDA at over 1 billion pounds. Only 23 percent is N cytoplasm, 37 percent blend, and 40 percent is from TMS cytoplasm stock. Thus, availability of desired seed may curtail some intentions. A 4.5 bil. bu. corn crop plus average yield of other grains would yield a total feed grain supply in the neighborhood of 215 mil. tons. If total livestock and poultry numbers remain at about the same level as in 1970/71, the feed grain supply per grain consuming animal unit would be about 1.7 ton. In past years, this supply level has been consistent with a season average price of roughly $1.25 per bushel, basis Minneapolis. A typical seasonal price pattern would mean about $1.35 per bushel early summer 1972 peak price, basis Minneapolis. If there are prospects of 1971 blight damage or other problems with the growing feed grain crop, the price pattern as the 1971 harvest is approached would be like the 1970 experience, with sharp price reaction to news of crop conditions. If there were severe damage to the 1971 corn crop, reducing yield as low as 3.5 billion bushels, we would expect a season average Minneapolis corn price of roughly $1.55 per bushel. This could mean a harvest price of $1.45, and an early summer peak of about $1.55 to $1.60.

In summary, if there is no corn blight we expect a $1.25 Minneapolis season average price with a $1.35 peak. If there is severe damage (say 25 percent) in 1971, we would expect a $1.55 season average price, with a $1.60 peak.

Soybeans

Price prospects for the 1971 soybean crop appear consistent with 1970 crop prices. Soybean production in 1970 was a record high, but carryover stocks from the 1969 crop were down. Hence, total 1970/71 supply is down from 1969/70, and carryover stocks for the 1971 marketing year will again be down. Soybean price, basis Minneapolis, has approached but not exceeded $3.00 per bushel.

The USDA's January 1 survey of preliminary planting intentions indicated that farmers were planning to plant 45.9 million acres of soybeans in 1971. This would be 7% above 1970, and the eleventh consecutive acreage record. Unless there is a sharp change in demand conditions, this would not be a burdensome supply. Price levels would likely be at or moderately above 1970/71 crop prices. Thus, assuming a 7% soybean production increase, we would expect Minnesota farmers to be facing a soybean price about the same in harvest as in 1970. A normal seasonal increase would yield an average price slightly higher than for the present year, which will likely work out to $2.85-$2.90, basis Minneapolis.

The large uncertainty in 1971 soybean production is acreage. Many farmers in areas of 1970 corn blight indicated a switch to more soybean and fewer corn acres. Much of the increased corn acreage intentions are from the northern corn belt. This means that unfavorable late spring planting conditions could cause many farmers to shift to soybeans, particularly if price looks favorable. Clearly, problems in distribution of blight resistent seed could result in greater shifts from corn to soybeans in other parts of the corn belt. Thus, there is a high probability of more than a 7% increase in soybean production. A production increase of 10 to 12% could result in a season average price closer to $2.50, basis Minneapolis.

In summary, it looks like a planning price for soybeans of $2.85 season average, basis Minneapolis is reasonable. However, the estimate could be placed at $2.60 if substantial acreage now planned for corn shifts into soybeans before planting is completed.

Wheat

Utilization of the 1970 wheat crop has been quite heavy. Exports are running well ahead of last year due to lower supplies in other exporting nations and good foreign demand. Higher feed-grain prices have resulted in bidding more wheat into feedlots. Feeding may run 10% above feeding from the 1969 crop. The USDA now estimates carryover stocks could drop to 700 million bushels by July 1, the beginning of the marketing year for the 1971 crop.

Total wheat supply for the 1971/72 marketing year will likely be down from 1970/71. Slightly lower winter wheat acreage and expected lower average yield will produce a smaller 1971 winter wheat crop. Spring wheat plantings will be up, if plans in the USDA's report on preliminary planting intentions materialize. Farmers planned 20% more durum wheat and 16% more other spring wheat. If spring wheat yields are the same as last year, we could expect a total 1971/72 wheat supply of about 2.1 billion bushels; about 6% below 1970/71 but slightly above the 1964-68 average.

Domestic demand for wheat will be greater in 1971/72--both for food and livestock feed. The wheat export market is nearly as large as domestic consumption. It is difficult to say whether it will be as good in 1971/72 as in 1970/71. It clearly depends on crop conditions in other countries as well as on international trade conditions. It now looks as if a season average price of $1.75 per bushel (basis Minneapolis No. 1 D.N.S.O.) for the 1971 crop would be appropriate. However, Minnesota harvest prices are likely to be depressed if the planned 50% increase in Minnesota spring wheat acres produces average or better yields.

ANALYSIS PROCEDURE, SHORT FORM

If participation in the program does not force you to increase your acreage in lower return "conserving" crops, the analysis procedure can be a simple partial budget comparison. You compare the returns you expect from an acre of the crop you would reduce in acreage (on the field you would place in the set aside) with the amount per acre you will be paid.

Feed Grain Program Participation vs. No Participation

To estimate per acre crop returns from the acreage you would set aside, you must project what yield, price, and variable costs on that particular field might be. Let's look at three examples of participation in the feed grain program. Table 1 shows expected returns per acre if the crop is planted--compared with what per acre payments would be for participating in the feed grain program.

Table 1. Expected Returns Over Variable Costs Compared With Returns Per Acre Set Aside in the Feed Grain Program.

Crop to be Reduced	Farm #1 Beans	Farm #2 Corn	Farm #3 Corn	My Farm _____
No Participation				
Expected yield	30	90	95	_____
x Expected price	$2.80	$1.20	$1.30	_____
= Expected value	84	108	123	_____
- Expected var. costs	18	38	38	_____
= Expected returns if planted	$ 67	$ 70	$ 85	_____
Participation				
1/2 of feed grain base	100	100	100	_____
x Assigned corn yield	90	90	90	_____
x Price Support payment	.32	.32	.32	_____
= Set aside payment	$2880	$2880	$2880	_____
÷ Set aside acres	40	40	40	_____
= Payment per acre set aside	$ 72	$ 72	$ 72	_____

Farmer #3 would expect to lose but farmers #1 and #2 would gain from participation in the feed grain program. If corn yield and price expectations are high, and corn acreage must be reduced in order to participate, there will be economic incentive to stay out of the program. But, if acreage is reduced in a lower return crop and/or yield expectations are not very high on the particular field to be diverted, the set aside payment will likely more than pay for the loss in crop returns.

Wheat Program Participation vs. No Participation

Table 2 shows some examples of the short cut analysis method applied to the wheat program.

Table 2. Comparative Per Acre Returns from Participation and No Participation in the Wheat Program.

Crop to be Reduced	Farm #4 Oats	Farm #5 Wheat	Farm #6 Wheat	My Farm _____
No Participation				
Yield	80	20	30	_____
x Price	$ .55	$1.50	$1.70	_____
= Value	44	30	51	_____
- Variable Costs	14	15	18	_____
= Returns	30	15	33	_____
Participation				
Old Allotment	100	100	100	_____
Domestic base	43.3	43.3	43.3	_____
x Normal wheat yield	20	20	20	_____
x Expected price difference	1.45	1.45	1.25	_____
= Set aside payment	1256	1256	1083	_____
÷ Set aside (75% of base)	32.5	32.5	32.5	_____
= Payment per acre set aside	39	39	33	_____

Again, given a low return crop in which acreage can be reduced, participation will usually be profitable. This is especially true since wheat acreage can actually be expanded even by the participating farmer. Thus, when labor saving, weather risk and interest on preliminary payments are considered, the wheat program will probably be very attractive to most wheat producers in the Red River Valley.

If program participation requires you to greatly expand your acreage in "conserving" crops--and these are definitely lower return crop use alternatives, a more complete crop alternative budget must be worked out to evaluate the dollar impact of participation upon your business. Such a complete budget form is provided on the next few pages. To keep the following budget forms fairly simple, lines are not provided for all economic considerations. Rather, it is assumed that the cost of caring for set aside acres is offset by a fertility credit on these acres in the following year. If this assumption is not correct for your situation, appropriate adjustments should be made.

Also, though family labor is not a cash input, labor saved during peak labor periods has a high alternative use value on large farms. This fact should be considered along with the interest value on the preliminary payments.

COMPLETE CROP PLAN WORKSHEET

STEP 1. No Participation in Program

Determine the best combination of crops on your farm for the coming crop year without program participation. This decision should be given extra consideration this year because of the supply and price uncertainties that exist. Which crop will be your highest return crop and how many acres of it can you grow? Which crops are best suited for which fields? Use the form on the last page to select the best crop choice for each field and to determine which field(s) you expect to give the lowest return. After answering these questions record your best crop plan below, listing your low return field(s) separately.

Estimate the gross value of crop production from the best use of all crop land without participation in any government program. (Use last page for worksheet).

CROP	FIELD NUMBER	ACRES	YIELD PER ACRE	TOTAL PRODUCTION	OPERATOR'S SHARE		
					BU./TON	PRICE	VALUE

TOTAL VALUE OF CROP PRODUCTION

Note: In working through the next two alternatives consider:

- If participation means that extra livestock feed must be purchased, extra handling costs and/or a higher price than that used above must be accounted for.
- Remove production and cost figures appropriate to a specific field.

STEP 2. Wheat Program Participation

If you have a wheat base, estimate the adjusted gross value of crop production plus government payments with participation in the wheat program. Remember to maintain required "conserving acres" as well as the set aside.

CROP	FIELD NUMBER	ACRES	YIELD PER ACRE	TOTAL PRODUCTION	OPERATOR'S SHARE		
					BU./TON	PRICE	VALUE
Set aside			xx	xx	xx	xx	xx

Total Value of Crop Production

a. Add value of wheat certificates (from ASCS office) _____
b. Add value of cash costs saved by not planting set aside acres (seed, fertilizer, spray, etc. saved per acre x set aside acreage). _____
c. Add value of cash costs saved on added conserving acres (or subtract added costs if variable costs are higher on these new conserving acres). _____

TOTAL ADJUSTED GROSS INCOME FROM CROPS _____

STEP 3. Feed Grain Program Participation

Start with the better of the previous 2 budgets and estimate your adjusted gross income with participation in the feed grain program. Remember to plan required "conserving acres".

CROP	NUMBER	ACRES	YIELD PER ACRE	PRODUCTION	OPERATOR'S SHARE		
					BU./TON	PRICE	VALUE
Set aside			xx	xx	xx	xx	xx

Total Value of Crop Production

a. If in wheat program add value of wheat certificates _____
b. Feed grain price support payment (from ASCS office) _____
c. Add value of cash costs saved by not planting set aside acres. (seed, fertilizer, spray, etc, per acre x set aside acreage). _____
d. Add value of cash costs saved on added conserving acres (or subtract added costs if variable costs are higher on these new conserving acres). _____

TOTAL ADJUSTED GROSS INCOME FROM CROPS _____

CROP CHOICE BY FIELDS

Select the best crop for each field for the coming year by comparing your expected costs and returns from at least two alternative row crops for each acre you desire in row crops, and doing likewise for your small grain acreage. By recording expected planting dates after consideration of normal spring rainfall patterns, you will be faced with the fact of the usual yield reduction from late planted crops. Group comparable fields.

Transfer your best combination of crops to the no participation table on page 10.

Crop	Field Number	Expected planting date	Expected Yield	Expected Price	Gross Value	Variable Costs*	Return over Variable Costs
Crop #1							
Crop #2							
Crop #3							
Crop #4							

* Estimate Your Variable Costs Per Crop Acre for Each Crop and for Different Fields When Appropriate

	Crop _____	
Item	Field No. _____	_____
Seed	_____	_____
Fertilizer	_____	_____
Chemicals	_____	_____
Insurance	_____	_____
Fuel and Oil	_____	_____
Machine Repair	_____	_____
Interest	_____	_____
Custom Work	_____	_____
Other (twine)	_____	_____
Total	_____	_____