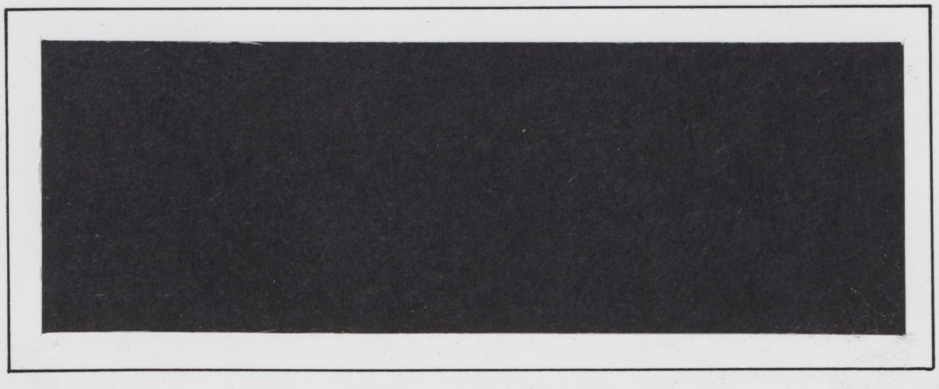

WORKING PAPER

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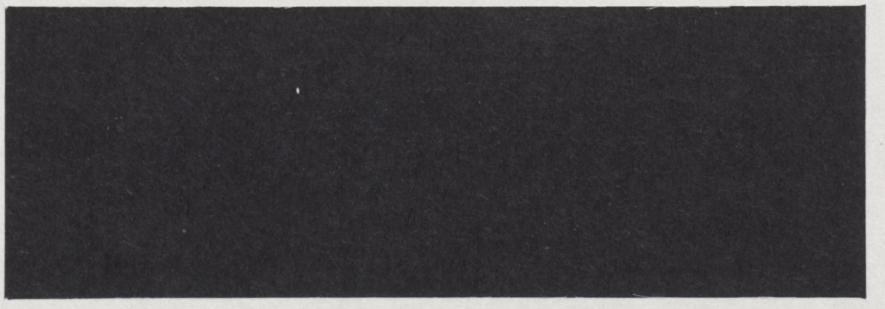

GRAIN RESERVE ADVANCE PROPOSAL

(Working Paper 2/86)

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GRAIN RESERVE ADVANCE PROPOSAL

INTRODUCTION

> The legacy of the agricultural industry, with its recurring booms and busts, is very much at the heart of the westerners' feelings of insecurity. Gyrating world markets, together with the vagaries of weather, diseases and pests, have created wide fluctuations in farm income.
>
> Economic Council of Canada Report: Western Transition, 1984.

The statement above succinctly summarizes the reasons why producers request government action to overcome the farm income instability inherent in the prairie grain economy.

Grain producers recognize that since it is unrealistic to expect that nature will become more stable in the future, other factors will have to be influenced in order to improve income security. Over the years, there has been intense interest on the part of producers in negotiating an International Grains Agreement that would include pricing provisions for the purpose of providing a minimum price. As an alternative to pricing provisions, there has also been interest in an agreement providing for the accumulation of buffer stocks in order to support world prices when world supplies become excessive. Despite continuing efforts by the federal government, it has not been possible to negotiate a workable International Grains Agreement with pricing provisions since 1962. During the 1970's, in the absence of an effective

International Wheat Agreement, the focus shifted to the search for a national approach to the problem of income insecurity. One result of this approach was the Western Grain Stabilization Act.

Producers have also expressed the view that the federal government should share the cost of carrying grain stocks, for limited periods of time, when those stocks are in excess of market requirements. In 1981, the Advisory Committee to the Canadian Wheat Board proposed a Market Assurance Plan for this purpose. The idea was raised again - although not as a formal proposal - at farm meetings held by members of the Advisory Committee in early 1983.

It has been demonstrated that increasing farm stocks do cause significant decreases in seeded acreage. Although this response may be appropriate under certain circumstances, particularly in the event of burdensome world supplies, it may be desirable to moderate the response with a view towards maintaining adequate stocks to meet future market demand (recognizing the variability in Canadian grain production) as well as to meet certain other objectives such as to encourage proper soil conservation practices.

An evaluation of the public payoff to proposals designed to reduce the private cost of farm inventories is beyond the scope

of this paper. The purpose is simply to evaluate a proposal designed to provide the farmer with some cash flow for grain that is stored on farm beyond the end of the crop year in which it was produced which will be referred to as the Grain Reserve Advance Program.

The PROPOSAL

The Grain Reserve Advance (GRA) would be an advance made to farmers secured by grain stored on farms at the end of the crop year. With a GRA, the farmer would receive some cash flow for grain produced but remaining unsold. The advance would be repaid as the grain was subsequently sold.

EVALUATION

The evaluation of this proposal involves a brief description of how such a mechanism might function, including an example using actual farm stocks of wheat and barley during the period 1963-64 to 1983-84, followed by a qualitative assessment of the impact such a program might have on several existing programs for the grains industry. Although a GRA program could be implemented for all regions of Canada, for simplicity, in this discussion it is limited to the Prairie region.

Description of How a Grain Reserve Program Might Work

A Grain Reserve Advance (GRA) program for grain stored on farms could be structured in many ways. The existing Prairie Grain Advance Payments (PGAP) program provides one model which is already familiar to prairie grain producers. The PGAP program provides an advance to the farmer on the volume of grain, based on expected quotas, that is likely to be delivered into the commercial handling system during the course of that crop year. This advance is ordinarily paid to the farmer early in the crop year, usually when circumstances are such that the farmer is unable to deliver his grain immediately. In this way, the farmer has a cash flow with respect to grain that won't be actually marketed until later in the crop year. It is a requirement of the program that the advance be repaid during the course of the crop year in which it is made as the grain is delivered. The Canadian Wheat Board (CWB) which administers the program, does have limited flexibility to extend the period of repayment in extenuating circumstances.

The GRA program outlined in this paper is modeled on the PGAP program.1/ The producer would receive a GRA based on

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1/ A GRA program could, in fact, be implemented by amending the Prairie Grain Advance Payments Act, although it may be preferable to maintain the current PGAP program while designing a new GRA program with different objectives from the PGAP program. The latter approach, requiring new legislation, is assumed for the purpose of this paper.

stocks stored on farm in excess of a "normal" carryover. The GRA received at the beginning of a crop year would relate to stocks accumulated during the previous crop year. Farmers would likely prefer that the rate/tonne be related to prices prevailing at the time the crop was planted. This could be done by relating the GRA rate/tonne to the initial payment in effect during the crop year in which the GRA stocks were accumulated since the initial payment for a particular crop year is normally announced prior to the seeding of that crop. This approach was adopted for the purpose of this paper although it could pose certain potential problems which will be discussed later. In keeping with the PGAP model, the GRA would be repaid as the grain was marketed, however, repayment would be over three crop years rather than one, recognizing that the objective is to provide cash flow on grain which may not be marketed for several years.

In order to evaluate how such a program might operate, arbitrary decisions were made concerning certain of the parameters mentioned in the preceding paragraph which were then applied to historical stock figures for the period 1963-64 to 1984-85. The operation of this hypothetical GRA program is shown in Table B-1 in Appendix B for wheat and in Table B-2 for barley.

In the case of wheat, a "normal" farm carryover level of 1.5 million tonnes was assumed. This minimum level actually

occurred in three out of the 22 years shown in Table B-1. For the purposes of this example, the reserve stocks upon which the GRA is calculated were defined as the actual farm stocks carried over from the previous crop year that were in excess of 1.5 million tonnes. Reserve stocks for each crop year are shown in column 3 of Table B-1.

The GRA rate/tonne is defined as a proportion of the initial payment in effect at the end of the crop year in which the reserve was accumulated. As mentioned earlier, a GRA calculated in this way would provide cash flow related to the initial payment anticipated when the crop was planted and, in particular, when certain production decisions were made and production costs incurred. The GRA rate/tonne rises as a proportion of the initial payment as the size of the reserve increases. Structured in this way, the program provides progressively more assistance to farmers as stocks become more burdensome - but only up to an arbitrary maximum. In the hypothetical GRA program, the proportion of the initial payment rises arbitrarily from zero (when reserve stocks are zero) by five percentage points for each 0.75 million tonnes increase in reserve stocks up to a maximum of 80 percent for a reserve of 12 million tonnes. The GRA rate/tonne (given in column 9 of Table B-1) effective in any crop year is the initial payment in column 7 multiplied by the percentage given in column 8 (the percentages associated with each size of wheat reserve are shown in Appendix A). For each crop year, the initial payment is the one in effect at the end of the preceding crop year.

At some point, the size of a carryover becomes excessive. In order to prevent the provision of an incentive to overproduce, the GRA rate/tonne is limited to a maximum of 80 percent of the initial payment. To the extent that initial payment levels are set in relation to expected market returns, the resulting GRA rate should not generally be set at a level that would exceed actual market returns and thus should not become a production incentive. Although the level of the GRA itself should not provide a production incentive, a distortion could be introduced through the existence of a GRA program since it would likely result in a delayed production response to any prolonged period of reduced prices and increased farm stocks. The production response would still occur, but over a longer period of time than would be expected in the absence of such a program.

The volume of grain on which a producer would receive a GRA would be a proportion of actual farm stocks as stated by the producer on the application for the GRA less any volumes for which a GRA from a previous year remained outstanding. Spot checks could be conducted to encourage accurate reporting of actual farm stocks of grain. The proportion of farm stocks eligible would be the quotient of the aggregate reserve stock (column 3 of Table B-1) for a particular year divided by the aggregate farm carryover stocks (column 2) for that year. For example, in 1983-84, $\frac{0.58}{2.08}$ or 28 percent of a producer's farm stocks would have been eligible while in 1979-80, $\frac{7.32}{8.82}$ or 83 percent would have been eligible.

Various methods could be devised for farmers repaying their GRA's. In order to ensure that the program provides an incentive to adjust to new market conditions and that GRA's are not outstanding for indefinite periods of time, the repayment period could be fixed at some definite length. In this paper, it is assumed that the GRA is repaid over three years - one-third of the advance is repaid in the year it was received by the farmer and one-third is repaid in each of the following two years. This could be accomplished with a procedure similar to the repayment obligations under the Prairie Grain Advance Payment Program. The amount of advance repayment per tonne would be determined from the farmer's total assigned acres, the minimum quotas set by the Canadian Wheat Board (CWB) for delivery that crop year, and the amount of GRA to be repaid in that crop year. This amount would then be deducted from the producer's initial payment for deliveries to the CWB. Under this procedure, it is possible that more than one-third of an outstanding GRA could be repaid if farm carryover is reduced quickly during the course of a single crop year. To prevent this, a sticker could be issued to the permit book holder so that repayments would not exceed one-third of a GRA in any crop year. The example assumes that a producer repays no more than one-third of the GRA in any crop year so that in 1973-74, for example, the GRA assumed to be outstanding is based on a reserve of 2.52 million tonnes (column 4 plus column 5 in Table B-1) which exceeds the actual reserve of 1.49 million tonnes

(column 3). In this case, not all of the "collateral" on which the GRA was advanced would remain in the possession of the farmer who received the advance. Since most farmers continue in production, signed agreements requiring the repayment of one-third of the GRA by the end of the crop year in which a GRA is advanced and each of the two following crop years, regardless of stocks on hand or actual marketings, should allow for the recovery of the remainder of the advance even though some of the grain on which the GRA had been advanced was already sold. Alternatively, repayment of the GRA could simply be accelerated during crop years in which the reserve is marketed more quickly than expected.

Column 10 of Table B-1 shows the total amount of money that would have been advanced through GRA's in each year during the period reviewed if a GRA program had been in place. Since this money would ultimately be repaid as the grain was marketed, the only cost to the government of this program would be the interest cost on these funds while they were outstanding. This interest cost, assuming a constant 10 percent rate of interest, is shown in the last column of Table B-3.

Table B-2 outlines the operation of a GRA program for barley using similar assumptions to those used in the wheat example. The initial payments used are those for No. 2 CW 6 Row barley for the period 1963-64 to 1970-71 and for No. 1 Feed barley

thereafter. Since a portion of the barley accumulated in the reserve might ultimately be consumed as livestock feed rather than entering the commercial elevator system, administering the repayment of GRA's on barley reserve stocks might be more difficult than for wheat. It seems likely that this problem could be resolved by determining an annual GRA based on wheat and barley farm stocks - each determined separately to reflect the different supply/demand conditions for the two grains - but then considering the total GRA advanced as a single obligation to be repaid through future grain deliveries regardless of what type of grain is ultimately delivered. Few farmers would be growing grain solely for the purpose of feeding livestock, accumulating stocks on which a GRA would be obtained but then not delivering any grain into the commercial system on which repayment could be made. In those cases which did occur, the farmer could be required to honour the agreement signed at the time the GRA was advanced to repay one-third of it in each of the three subsequent crop years regardless of whether or not deliveries were made to the commercial elevator system.

Assessment of Program Impact

A GRA program as outlined above would have added a significant degree of stability to gross farm receipts at certain times during the period under review when stocks were accumulating

on farms. At other times, however, the program would have had little effect in moderating the decline in farm receipts. It is, therefore, necessary to look more closely at particular periods within the overall period analyzed.

i) The Period 1967-68 to 1972-73

During the period 1967 to 1971 farm stocks of wheat and barley accumulated rapidly while farm receipts declined sharply. A GRA program would have performed only moderately well during the first two crop years but would have provided significant assistance during the last two years. The greatest decline in total farm receipts occurred between 1967-68 and 1968-69 (see table 1). During this period a GRA program would have added only a marginal amount of stability to farm receipts. The GRA adjusted total farm receipts in 1968-69 would have been only 69 percent of the 1963-69 average compared with the 68 percent which actually occurred. It should be noted in this regard that the degree of stability resulting from the GRA program depends upon the level of the GRA rate/tonne. If the rate/tonne had been set at a higher proportion of the initial payment, some additional assistance would have been provided during this period. For example, if the rate/tonne had been set at 80 percent of the initial payment level instead of the 30 percent used in Table B-1, total farm receipts in 1968-69 with the GRA would have been 76 percent of the 1963-69 average, rather than 69 percent.

To better understand why the program would have provided little assistance in 1968-69 compared with the following two years, it is necessary to examine the movements of the two components of farm receipts, namely prices and volume or farm marketings over the period. As can be seen from Table 2, farm marketings of wheat during 1968-69 declined 8 percent while barley marketings declined 5-6 percent. Returns to farmers on a per tonne basis, however, declined by a proportionately greater amount. Total realized prices (see Table 3) for CWB sales of wheat (initial payments plus any interim and final payments) were relatively stable during the period. The distribution of receipts was somewhat more variable between crop years, however, due to the fact that final payments are paid out to farmers several months after the end of the crop year so that they are actually receipts in the following crop year. For this reason, while the highest returns on CWB sales occurred on sales made during the 1965-66 and 1966-67 crop years, receipts were highest during the 1966-67 and 1967-68 crop years.

In 1967-68, in particular, a relatively high final payment largely offset the sharp reduction in farm marketings that occurred. As a result, total farm receipts declined by only 10 percent from the previous year. In 1968-69, the final payment received for the previous year's crop was only 23 percent of the final payment the previous year. The initial payment plus this

final payment on a per tonne basis actually received amounted to only 83 percent of the comparable figure a year earlier. This sharp decline in returns per tonne accounts for a much larger proportion of the decline in total farm receipts experienced in 1968-69 than does the 8 percent decline in farm marketings.

The GRA program is not designed to offset declines in prices or returns per tonne and therefore it should not be expected to have offset a large proportion of the decline in total farm receipts that occurred in 1968-69 since much of that decline was due to reduced returns per tonne.

In 1969-70 farm stocks again accumulated, this time to 10.07 million tonnes. Total farm receipts in 1969-70 without a GRA program were $751 million, down 6.8 percent from the year before and at 64 percent of the 1963-67 average of $1,181 million. Total farm receipts with a GRA program would have been $880 million, 7 percent above the previous year at 74 percent of the 1963-67 average ($1,188 million after adjustment for the GRA program). Farm receipts declined primarily because of the lack of a final payment for the previous year's crop and because the initial payment was reduced 12 percent from the previous year's level. Farm marketings of wheat declined by 2 percent while marketings of barley more than doubled from 1.7 million tonnes to 3.6 million tonnes.

TABLE 1

COMPARISON OF TOTAL FARM RECEIPTS WITH AND WITHOUT A GRA PROGRAM

	Actual Total Farm Receipts		Total Farm Receipts with a GRA Program	
	$ billion	% 1963-64 to 1967-68	$ billion	% 1963-64 to 1967-68
Average 1963-64 to 1967-68	1.181	100	1.188	100
1967-68	1.205	102	1.237	104
1968-69	0.806	68	0.822	69
1969-70	0.751	64	0.880	74
1970-71	0.945	80	1.119	94
1971-72	1.191	101	1.022	86
1972-73	1.556	132	1.474	124

TABLE 2

FARM MARKETINGS AND FARM STOCKS FOR WHEAT AND BARLEY - 1963-67 to 1972-73

	Farm Marketings		Farm Stocks	
	Wheat	Barley	Wheat	Barley
	million tonnes			
Average 1963-64 to 1967-68	14.9	1.9	3.2	1.0
1967-68	12.4	1.8	5.4	1.5
1968-69	11.4	1.7	6.6	1.6
1969-70	11.2	3.6	10.1	3.0
1970-71	10.4	5.0	14.7	2.8
1971-72	14.0	6.3	10.7	1.3
1972-73	17.2	5.1	8.4	1.9

TABLE 3

TOTAL REALIZED PRICE FOR CROP YEAR POOL ACCOUNTS AND PAYMENTS RECEIVED DURING THE CROP YEAR

Crop Year	Wheat				Barley			
	Total Realized Price	Payments Received During Crop Year			Total Realized Price	Payments Received During Crop Year		
		Initial	Final	Total		Initial	Final	Total
	$/Tonne							
1964-65	69.34	55.12	17.42	72.54	58.56	45.01	9.74	45.75
1965-66	73.38	55.12	14.22	69.34	59.98	45.01	13.55	58.56
1966-67	73.01	55.12	18.26	73.38	60.35	45.01	14.97	59.98
1967-68	66.65	62.46	17.89	80.35	51.53	49.60	15.34	64.94
1968-69	62.46	62.46	4.19	66.65	49.60	49.60	1.93	51.53
1969-70	61.73	55.12	2.68	57.80	43.86	42.71	0	42.71
1970-71	61.40	55.12	3.93	59.05	47.31	42.71	5.74	48.45
1971-72	58.60	53.65	6.28	59.93	42.71	42.71	0	42.71
1972-73	79.14	53.65	16.01	69.66	72.11	45.01	4.13	49.14

1. Wheat prices are those for No. 1 Northern prior to 1971-72 and No. 1 CWRS thereafter.

2. Barley prices are those for No. 2 CW 6 Row.

3. The total realized price represents the CWB payments (initial, interim and final) received for grain delivered during any particular crop year.

4. The final payment shown in a particular crop is the final payment received in that crop year but from the pool account for the previous crop year. Any interim or adjustment payments for the current crop year are also included.

5. The total payments received during a crop year differs from the total realized price for that crop year because the final payment is included in the crop year in which it was received, not the year in which the grain was delivered.

In 1970-71, farm stocks reached the record level of 14.7 million tonnes, 4½ times the average level for the period 1963-67. Wheat marketings declined by a further 7 percent while barley marketings increased 40 percent to 5 million tonnes. Total farm receipts were $945 million, 80 percent of the 1963-67 level. With a GRA program, they would have been $1,119 million or 94 percent of the average for 1963-67.

Farm stocks declined 27 percent in 1971-72 to 10.67 million tonnes and total farm receipts increased 26 percent to $1,191 million (marginally above the average for 1963-67). Total farm receipts with a GRA program would have declined 8.6 percent to $1,021 million (86 percent of the average for 1963-67).

For the period 1967-68 to 1970-71, actual total farm receipts totalled $3.707 billion. The total with a GRA program would have been $4.058 billion for an increase of $351 million or 9.5 percent.

It must be noted that this program would simply redistribute cash receipts between years but would not add any new receipts. Thus, the counter-balance to improved returns in 1969-70 and 1970-71 is that total receipts are reduced in 1971-72 and 1972-73 from what they otherwise would be. These reduced returns might result in a reduced, or at least delayed, production response as market conditions improve.

ii) The Period 1976-77 to 1983-84

This period corresponds to that in which the Western Grain Stabilization Program (WGSP) was in effect. Table 4 shows a comparison of farm receipts with and without both the WGSP and a GRA program.

There were two crop years during this period in which farm stocks increased sharply. Beginning farm stocks in 1977-78 increased to 7.08 million tonnes from the minimum level of 1.5 million tonnes in each of the previous two years. Beginning stocks in 1979-80 totalled 8.82 million tonnes after declining to 4.9 million tonnes in 1978-79. Stocks in the following four years averaged 2.84 million tonnes and did not exceed 4.14 million tonnes in any one year.

In 1977-78, a GRA program would have increased farm receipts by $144 million over and above actual receipts of $2.98 billion. In 1979-80 actual receipts of $4.39 billion would have been increased by $133 million. The additional receipts would have amounted to 4.8 percent and 3 percent respectively.

Table 4 indicates the proportions of each year's receipts relative to the period average both with and without the GRA and the WGSP. In 1977-78, receipts with both GRA and WGSP programs would have been 71 percent of the period average versus

Table 4

COMPARISON OF TOTAL FARM RECEIPTS WITH AND WITHOUT GRA PROGRAM AND WGSP

Crop Year	Actual Total Farm Receipts	% of Period Average	Farm Receipts Plus GRA	% of Period Average	Farm Receipts Plus WGSP Payment	% of Period Average	Farm Receipts Plus GRA And WGSP	% of Period Average
	$ million	%	$ million	%	$ million	%	$ million	%
1976-77	2,567	55	2,567	55	2,893	60	2,847	59
1977-78	2,981	64	3,125	67	3,383	70	3,408	71
1978-79	3,329	72	3,322	71	3,685	76	3,688	77
1979-80	4,390	94	4,523	97	4,390	91	4,523	94
1980-81	6,383	137	6,232	133	6,383	132	6,232	130
1981-82	5,592	120	5,473	117	5,592	116	5,473	114
1982-83	6,120	131	6,169	132	6,153	128	6,182	129
1983-84	5,885	126	5,945	127	6,104	127	6,122	127
Average	4,656		4,670		4,823		4,809	

70 percent with just the WGSP. In 1979-80, receipts with both programs would have been 94 percent of the period average compared with 91 percent with just the WGSP.

It appears, therefore, that the GRA program would have provided a small amount of additional stability to prairie farm receipts during this period even with the existence of the WGSP.

Relation of a GRA Program to Other Government Programs

The GRA concept is aimed at providing a form of income assistance to grain producers. Certain existing Acts of Parliament already provide income assistance, for example, the Western Grain Stabilization Act, the Prairie Grain Advance Payments Act and the Advance Payments for Crops Act. Other programs providing assistance to producers that will be considered for possible impacts from implementing a GRA program are Crop Insurance and the initial payments provided under the CWB's pooling system.

i) Western Grain Stabilization Act

The Western Grain Stabilization Program (WGSP) is a global income stabilization plan providing protection for prairie

grain producers against factors which affect cash flow throughout the entire prairie grain growing region such as falling prices, widespread inability to market grain, widespread crop failures and cost increases that are not offset by higher grain prices.

The GRA program would address one specific factor - restricted market opportunities - that is already addressed by the WGSP. It must be noted that the WGSP involves federal government contributions as well as producer contributions to a fund from which stabilization payments can be triggered when farm cash flow falls below the average level of the previous five years.

In circumstances where there was a build-up of grain stocks on the prairies, the amount of GRA's advanced would influence the size of payout under the WGSP. Assuming the GRA's would be considered as income to the producer in the year in which they were received, payouts under the WGSP could be reduced with a GRA program during years in which stocks were being built up. In subsequent years as farm stocks were reduced, gross farm receipts would decline by the amount of repayments required to retire the GRA's made previously. To the extent that farm stocks were being reduced as a result of an increasing volume of sales, gross receipts would likely be increasing from the level of previous years so that a WGSP payout would not likely occur.

Table 5 shows gross farm receipts and WGSP payouts, as calculated both with and without a GRA program. Over the period since the Western Grain Stabilization Act was enacted, payouts under that act would have been $217 million less if a GRA program had been in place. This reduced level of payout from the WGSP due to the presence of a GRA program would indicate that perhaps both producer and government contributions to the WGSP could be reduced. Assuming that the federal government could have saved two-thirds of the $217 million in reduced payouts over the eight years the WGSP had been in place, savings would have been in the order of $18 million per year. According to the assumptions used in the example given in this paper, interest costs to the federal government for a GRA program over the same eight years would have amounted to $15 million per year ($13 million/year over the period 1963/64 - 1984/85). During the period under review, therefore, savings to the federal government in reduced contributions to the WGSP would have exceeded the additional costs involved in providing a GRA program. This is consistent with the expectation that total government costs would be reduced through the introduction of the GRA because in a year of a WGSP payout, any advance under the GRA would reduce the WGSP payout dollar for dollar and the government is responsible only for interest on the advances and for two-thirds of the "principal" under the WGSP. However, the issue is complicated by the fact that the advances under the GRA also affect returns in the five-year base period of

TABLE 5

GROSS RECEIPTS TO PRAIRIE GRAINS SECTOR WITH AND WITHOUT A GRA PROGRAM

Crop Year	Gross Grain Proceeds without a GRA	Gross Grain Proceeds with a GRA	Net Change to Gross Grain Proceeds With a GRA	Confidential Actual WGSP Payouts	Confidential WGSP Payouts With a GRA Program
		- $ million -			
1976-77	2,567	2,567	0	326	280
1977-78	2,981	3,125	+144	402	283
1978-79	3,329	3,322	-7	356	366
1979-80	4,390	4,523	+133		
1980-81	6,383	6,232	-151		
1981-82	5,592	5,473	-119		
1982-83	6,120	6,169	+49	33	13
1983-84	5,885	5,945	+60	219	177

1. Includes all commercial sales of wheat, oats, barley rye, flaxseed, rapeseed/ canola, and mustardseed in the CWB designated area. Includes sales of all producers and interested parties. Data was collected by the WGSP Administration in Winnipeg fram sales tickets for all transactions.

2. Basis $60,000 MERL. Tabulation March 15, 1985

the WGSP so that it is not possible to draw firm conclusions about total government costs from this analysis. It should also be noted that the maximum savings would occur with the full participation of WGSP participants in the GRA program and thus any lack of participation on the part of WGSP participants would reduce such savings to the government.

One advantage of the GRA program over the WGSP would be that the GRA would provide more assistance to the individual producer who carried a larger proportion of excess stocks, (e.g. because of higher productivity), since any decline in net cash receipts under the WGSP is shared proportionally by all participants, according to the amount of levies paid into the fund, regardless of the level of individual farm stocks.

ii) Prairie Grain Advance Payments Act/Advance Payments for Crops Act

The Prairie Grain Advance Payments Act provides for cash advances on CWB grains in farm storage and available for marketing but which cannot be delivered early in a crop year resulting in a reduced cash flow for the producer. The reasons for the producer being unable to deliver the grain are generally beyond his control. The primary elevator system may be congested due to disruptions in the handling and transportation system or the CWB may have temporarily decided to move only certain grades of grain to export position leaving other grades to be marketed later in the crop year.

The Advance Payments for Crops Act provides cash advances to producers of non-CWB grains such as rapeseed on the Prairies and all grains in other regions. This gives the producer additional flexibility in deciding when to sell by reducing the pressure to sell at harvest when prices are normally at seasonal lows.

These cash advances are made only for grain which is expected to be marketed during the course of the crop year in which the advance was made. Care is taken in the administration of these programs to ensure that the money advanced is repaid during the same crop year. For this reason, the objectives of the cash advance programs and the proposed GRA program are quite different since the GRA program is aimed at alleviating cash flow problems due to market restrictions that persist for longer than a single crop year.

A producer might receive a significantly higher cash flow early in certain crop years if he were eligible for both the cash advance under the Prairie Grain Advance Payments Act or the Advance Payments for Crops Act as well as the GRA. However, later in that crop year as the producer delivered his grain to the elevator, his cash flow would be reduced since deductions from the initial payment would be made for repayment of both advances at the same time. An alternative would be to design a mechanism in

which repayments of the GRA would not begin until the cash advance under the Prairie Grain Advance Payment Act or the Advance Payments for Crops Act had been repaid. This could be done, for example, by having deductions for the GRA commence only after a producer had delivered the minimum quota that the CWB is expecting for the crop year and upon which the Prairie Grain Advance Payments cash advance is based. In this way, the GRA would provide additional stability to cash receipts since a producer would not repay one-third of each GRA each year as assumed in this paper but would only begin repaying it once the farm reserve stocks began to move to market.

iii) Crop Insurance

Crop Insurance is tailored to provide relief against production shortfalls which affect individual farmers. Payments are made on the basis of crop yields experienced relative to regional average yields. Participation is voluntary and the farmer can choose between several levels of coverage. The farmer must also pay an insurance premium.

Crop Insurance is designed to provide an amount of protection against drastic reductions in receipts from crop production due to natural causes such as drought or frost. It is not designed to cover reduced receipts resulting from such other factors as falling world grain prices, rising costs of production

or restricted market opportunities. The GRA is specifically targeted at addressing cash flow shortfalls occurring when cash costs have been incurred in producing a crop but the crop has not been sold due to restricted market opportunities. There is, therefore, no overlapping of objectives or impacts between Crop Insurance and the proposed GRA program. The two programs would, in fact, be complementary in that cash flow would be maintained to the farmer during periods of adversity so that the financial strength of individual production units, including investment in machinery and inputs, would be maintained in a healthier state than would likely be the case in the absence of such programs.

iv) CWB price pooling and initial payments

The CWB's system of price pooling involves making an initial payment to the grain producer when he delivers grain and a final payment once final accounting can be made of all the receipts from sales of grain delivered into a particular pool account and of all the costs incurred in marketing that grain. This system provides the same per tonne revenue to all producers delivering the same quality of grain during a crop year regardless of when during that year a particular producer actually delivered his grain.

Generally speaking, the pooling system is operated in such a way as to reflect back to producers the average market

value of their grain. That is, even though the initial payment is guaranteed by the federal government, it is generally set at such a level at the beginning of the crop year as to ensure that average revenues during the year less costs will exceed the initial payment level. As a result, a deficit on the pool accounts has rarely occurred.

During periods of declining world grain prices, there is understandably, pressure from producer groups resisting any reduction in initial payment levels in an attempt to support producers' incomes. Were initial payment levels to be maintained at too high a level in relation to market prices, however, significant additional costs could be incurred by the federal government in covering subsequent deficits on the pool accounts.

The proposed GRA's would be based on the initial payment levels in effect during the crop year in which grain stocks were built up. This mechanism should allow for the GRA's to be related to actual market returns and the GRA's would therefore not provide an incentive to overproduce. This could be expected to happen as long as initial payment levels continued to be adjusted in relation to expected market prices. There is a possibility that the inclination of producer groups to lobby for initial payment levels too high in relation to market prices might be reinforced

in the event that an additional income support mechanism (the GRA) was based on the initial payment level. On the other hand, the presence of the GRA in addition to the WGSP would provide increased justification for resisting such pressure since it could be argued that these alternative programs were in place for supporting producers' cash flows, allowing initial payment levels to fluctuate in response to market conditions.

INTERNATIONAL CONSIDERATIONS

International trade in agricultural products is significantly influenced by national policies in many countries which insulate domestic markets from changes in the international market place. Canada has argued that such policies should be adjusted so that domestic economies become more responsive to the changing international economy. As mentioned earlier, the proposed GRA program could result in a delayed production response to accumulating world grain stocks compared with what would likely happen in the absence of such a program. Implementation of such a program might therefore be criticized for operating counter to Canada's stated position. Nevertheless, it could be argued that such a program would allow for adjustment over the longer term to

changes in the international market and would be, in fact, more responsive than many of the price related support measures currently used by certain other nations and is therefore an improvement over such programs.

OTHER ASPECTS OF THE MODEL'S PERFORMANCE

The variable proportion GRA rate scale was proposed in order to see if a mechanism could be designed which would automatically adjust in order to provide assistance when stocks were building up while at other times providing a sufficiently small level of assistance so that producers would not use the program when it was not needed. An investigation of the sensitivity of the level of assistance provided to changes in the GRA rate was not undertaken. Nevertheless, several observations can be made based on the work presented. It appears that the GRA rate/tonne did not escalate quickly enough in 1968-69 in order to provide significant assistance in offsetting the decline in income which occurred while grain stocks were accumulating. An alternative proposal would be to set the rate scale to begin at a higher proportion of the initial payment, say 30 percent, and to apply to a lower reserve stock volume (say 3 million tonnes rather than 4.5 million in Appendix A) and to have the maximum 80 percent level be reached at a lower maximum reserve stock volume.

Further evaluation would be necessary in order to determine whether or not the GRA program could be more helpful with the different rates/tonne or in different market circumstances. It would be desirable to simulate the operation of a GRA mechanism over a wider range of farm stock levels with different rates/tonne in order to measure the sensitivity of any particular rate scale to possible market conditions that could occur in the future. It would be interesting, in particular, to simulate a stock accumulation situation similar to that which occurred in 1969 and 1970 but with a WGSP in place in order to see if the GRA would provide a greater degree of stability than that indicated during the 1976-1983 period.

The initial payment level upon which the GRA rate is based in this example is the one in effect in the crop year preceding the year in which the GRA would be advanced. Even though the GRA rate is 80 percent of the initial payment, in a falling market the GRA could end up being higher than local prices on the prairies. This could, in fact, have happened in 1982-83 for No. 1 Feed Barley if a different variable proportion rate scale had been employed. For example, if the GRA rate had been set at 80 percent of the initial payment level, the result would have been a GRA rate of $99/tonne compared with an average farm price of $83/tonne. This could serve to maintain prairie grain prices somewhat above the level that would have existed in the absence of a GRA program. The GRA rate, however, would apply only to old crop grain. Since new crop grain would not be

eligible for a GRA until the following year, there would still be an incentive to service the local feed market. Any effect of raising prairie feed grain prices would, of course, be seen as desirable by grain producers and as undesirable by grain users. In an extreme case, a GRA based on the initial payment in the old crop year might even exceed the price received when the grain was sold. This would result in the farmer having to pay back part of the GRA in cash after the grain had been delivered. These results could be avoided by basing the GRA rate on the current year's initial payment, which would be expected to more closely reflect current market conditions, rather than the previous year's initial payment.

As mentioned earlier, under the current proposal, a farmer could be expected to repay a GRA at the same time as an advance under the Prairie Grain Advance Payments Act was being repaid. One alternative would be to have deductions for the GRA only commence after the producer had delivered the minimum quota anticipated by the CWB and upon which the PGAP would have been repaid.

This change would mean that the GRA would not necessarily be repaid within any fixed period of time such as the three years specified in this paper. In order to provide an incentive for adjustment to longer run market conditions (i.e. not provide cash flow on an unlimited amount of production), some other limit would have to be incorporated such as a maximum volume of grain per acre on which a producer could receive a GRA.

CONCLUSIONS

The preliminary results presented here indicate that a GRA program could provide a degree of additional stability to gross farm receipts between crop years. During the period in which the WGSP was operative, some supplemental stability was provided although the amount of additional cash flow in years of stock accumulation was relatively small.

The GRA also provides a method of assisting farmers that is more responsive to the actual stock accumulation situation being experienced by individual farmers than does the WGSP. Farmers carrying over larger than average stocks would receive greater assistance through the GRA than would other farmers with only average stocks whereas the WGSP provides equal levels of assistance between farmers regardless of the actual cash flow situation in the year a payout is made.

The analysis indicates as well that savings in government contributions under the WGSP would offset to a large extent, if not completely, the additional costs involved in providing a GRA program.

A comparison with existing government programs indicates that no significant inconsistencies would be introduced along with a GRA program. As just mentioned, a GRA would provide income stability in addition to the WGSP at little or no additional cost to the government. The objective of a GRA relates to stocks being carried over between crop years while the PGAP relates to volumes of grain to be delivered within a crop year so that no conflict between these programs would exist. A GRA would also complement the Crop Insurance Program.

APPENDIX A

Percentage for Each Size of Reserve Used for Calculating the Reserve Advance Rate/tonne for Wheat and Barley

Wheat		Barley	
Size of Reserve Million tonnes	%	Size of Reserve Million tonnes	%
0	0	0	0
0.75	5	0.33	10
1.50	10	0.66	20
2.25	15	0.99	30
3.00	20	1.32	40
3.75	25	1.65	50
4.50	30	1.98	60
5.25	35	2.31	70
6.00	40	2.65	80
6.75	45		
7.50	50		
8.25	55		
9.00	60		
9.75	65		
10.50	70		
11.25	75		
12.00	80		

APPENDIX B

TABLE B-1 - Possible Operation of a Reserve Advance Program for Wheat Over the Period 1963-1984

1 Crop Year	2 Farm Carryover From Previous Year	3 Reserve Stock (Excess Over 1.5 mt)	4 Reserve Assumed Carried Over From: t-2 (.33 x New Reserve t-2)	5 Reserve Assumed Carried Over From: t-1 (.67 x New Reserve t-1)	6 New Reserve For Current Year t (column 3 - [column 4 + column 5])	7 Initial Payment t-1	8 Reserve Advance Rate	9 Reserve Advance For Period t (column 7 x column 8)	10 New Money Advanced t (column 6 x column 9)
	million tonnes					$/tonne	%	$/tonne	$ million
1963-64	1.76	0.26	-	-	0.26	55.12	0	-	-
64-65	3.28	1.78	-	0.17	1.61	55.12	10	5.51	8.87
65-66	2.97	1.47	0.09	1.07	0.31	55.12	10	5.51	1.71
66-67	2.72	1.22	0.54	0.20	0.48	55.12	5	2.76	1.33
67-68	5.44	3.94	0.10	0.32	3.52	55.12	25	13.78	48.51
1968-69	6.61	5.11	0.16	2.35	2.60	62.46	30	18.74	48.72
69-70	10.07	8.57	1.17	1.73	5.67	62.46	55	34.35	194.76
70-71	14.70	13.20	0.87	3.78	8.55	57.80	80	46.24	395.35
71-72	10.67	9.17	1.89	5.70	1.58	55.12	60	33.07	52.25
72-73	8.38	6.88	2.85	1.05	2.98	53.65	55	29.51	87.94
1973-74	2.99	1.49	0.53	1.99	-	64.67	10	6.47	-
74-75	2.05	0.55	0.99	-	-	137.79	0	-	-
75-76	1.50	0	-	-	-	137.79	0	-	-
76-77	1.50	0	-	-	-	137.79	0	-	-
77-78	7.08	5.58	-	-	5.58	110.23	35	38.58	215.28
1978-79	4.90	3.40	-	3.72	-	110.23	20	22.05	-
79-80	8.82	7.32	1.86	-	5.46	128.60	45	57.87	315.97
80-81	4.14	2.64	-	3.64	-	156.16	15	23.42	-
81-82	1.53	0.03	1.82	-	-	196.50	0	-	-
82-83	3.61	2.11	-	-	2.11	174.50	10	17.45	36.82
1983-84	2.08	0.58	-	1.41	-	174.50	0	-	-
84-85	1.74	0.24	0.70	-	-	170.0	0	-	-

TABLE B-2 - Possible Operation of a Reserve Advance Program for Barley Over the Period 1963-1984

1 Crop Year	2 Farm Carryover From Previous Year	3 Reserve Stock (Excess Over 1.0 mt)	4 Reserve Assumed Carried Over From: t-2 (.33 x New Reserve t-2)	5 t-1 (.67 x New Reserve t-1)	6 New Reserve For Current Year t (column 3 - [column 4 + column 5])	7 Initial Payment t-1	8 Reserve Advance Rate	9 Reserve Advance For Period t (column 7 x column 8)	10 New Money Advanced (column 6 x column 9)
	million tonnes					$/tonne	%	$/tonne	$ million
1963-64	0.63	0	-	-	0	44.09	0	0	-
64-65	1.31	0.31	-	-	0.31	44.09	10	4.41	1.37
65-66	0.78	0	-	0.21	0	44.09	0	0	-
66-67	0.72	0	0.10	-	0	44.09	0	0	-
67-68	1.46	0.46	-	-	0.46	44.09	10	4.41	2.03
1968-69	1.55	0.55	-	0.31	0.24	48.68	10	4.87	1.17
69-70	2.97	1.97	0.15	0.16	1.66	48.68	60	29.21	48.49
70-71	2.77	1.77	0.08	1.11	0.58	41.80	50	20.90	12.12
71-72	1.34	0.34	0.55	0.39	0	41.79	10	4.18	0
72-73	1.87	0.87	0.19	-	0.68	37.20	20	7.44	5.05
1973-74	1.92	0.92	-	0.45	0.47	43.63	20	8.73	4.10
74-75	1.44	0.44	0.23	0.31	0	98.75	10	9.88	-
75-76	1.11	0.11	0.16	-	0	98.75	0	0	-
76-77	1.09	0.09	-	-	0.09	87.27	0	0	-
77-78	1.13	0.13	-	0.06	0.07	80.38	0	0	-
1978-79	3.11	2.11	0.03	0.05	2.03	80.38	60	48.23	97.91
79-80	3.20	2.20	0.02	1.35	0.83	79.67	60	47.80	39.67
80-81	1.10	0.10	0.68	0.55	0	89.57	0	0	-
81-82	1.14	0.14	0.28	-	0	131.00	0	0	-
82-83	1.98	0.98	-	-	0.98	124.00	30	37.20	36.46
1983-84	3.30	2.30	-	0.65	1.65	110.00	70	77.00	127.05
84-85	1.12	0.12	0.33	1.10	-	110.00	0	0	-

1/ Sum of initial plus any adjustment payments for No. 2 CW 6-Row Barley in store Thunder Bay until 1970-71.

TABLE B-3 - Grain Receipts for the Prairie Grains Sector with a GRA Program

Crop Year	Grain Receipts without a GRA	Grain Reserve Advance Program			Interest Cost to Government
		New Money Advanced	Repayments	Net Change To Gross Receipts	
		- $ million -			
1963-64	1,113	-	-	-	0
1964-65	1,102	10.24	3.41	+6.83	1.10
1965-66	1,142	1.71	3.98	-2.27	0.80
1966-67	1,344	1.33	4.42	-3.10	0.42
1967-68	1,205	50.54	17.86	+32.68	4.31
1968-69	806	49.89	33.92	+15.98	6.71
1969-70	751	243.25	114.56	+128.69	23.61
1970-71	945	407.47	233.54	+173.93	46.95
1971-72	1,204	52.25	234.33	-182.08	28.78
1972-73	1,565	93.00	184.24	-91.24	17.15
1973-74	3,327	4.10	49.78	-45.68	5.86
1974-75	3,077	-	32.37	-32.37	1.76
1975-76	3,120	-	1.37	-1.37	0.07
1976-77	2,567	-	-	-	0
1977-78	2,981	215.28	71.76	+143.52	17.94
1978-79	3,329	97.91	104.39	-6.49	18.92
1979-80	4,390	355.64	222.94	+132.70	38.14
1980-81	6,383	-	151.18	-151.18	19.42
1981-82	5,592	-	118.55	-118.55	5.93
1982-83	6,120	73.28	24.43	+48.85	6.11
1983-84	5,885	127.05	66.78	+60.28	14.25
1984-85	-	-	66.78	-66.78	7.57

1. Grain receipts for crop years 1963-64 to 1970-71 are Farm Cash Receipts from Statistics Canada. Grain receipts for crop years 1971-72 to 1984-85 are gross receipts as calculated by the WGSP Administration from sale transactions for all transactions and includes all commercial sales of wheat, oats, barley, rye, flaxseed, rapeseed/canola, and mustardseed in the CWB designated area.

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