WHEAT - A COST BENEFIT ANALYSIS

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BACKGROUND

In the year ended January, 1979 the New Zealand Wheat Board paid out to growers nearly $36 million to purchase the 1978 wheat crop. During the 1978/79 year New Zealand total export receipts from the pastoral sector amounted to $2,898.7 million. Despite the fact that we are all vitally interested in a viable progressive wheat industry, let us not forget that in 1978/79 the total value of the New Zealand wheat crop was only the equivalent of 1.25% of the total export receipts from wool, meat and dairy products. However, while in total the wheat industry may lack size, the same industry directly effects everyone in this country. The average New Zealander each year consumes 110 kg of meat; he also consumes 70 kg of flour. It is a brave Government that increases the price of flour and scorns the wrath of the Trade Unions and the whole range of protest groups including agitated housewives. I make this point because the majority of wheat growers must appreciate the relative significance of their industry both at the national level and as it affects our everyday living standards.

THE WHEAT GROWING UNIT

It is a fact of life that the average New Zealand mixed cropping farm is in reality a sheep farm with a "dash" of crop. Information collected from the National Wheat Growers Survey conducted by the Agricultural Economics Research Unit (A.E.R.U.) at Lincoln College on behalf of the wheatgrowers sub section of Federated Farmers clearly illustrates this point.

TABLE 1. PHYSICAL PRODUCTION 1978-79
(areas in hectares)

	Canterbury	*Southland*
Farm Area	235.3	229.2
Area Cash Crop Harvested	67.0	24.6
Wheat	21.8	16.8
Barley	16.8	2.9
Peas	9.9	0.6
Small Seeds	13.2	1.3
Other	5.3	3.0
Total Stock Units	1635	2296
Carying Capacity per non harvested ha (S.U.)	9.7	11.2
% farm in cash crop	28.5	10.7
% crop area in wheat	32.5	68.3

Source: Economic Survey of N.Z. Wheatgrowers Enterprise Analysis No. 3, 1978-79.

While livestock may dominate the physical production on mixed cropping properties in both Canterbury and Southland it should be noted that:

* In Southland wheat represents 68% of the cropped area and it is the profitability of wheat that determines the profitability of the cropping enterprise.

* In Canterbury crops other than wheat represent 67.5% of the cropped area and it is the profitability of these crops which have the major influence on determining the profitability of the cropping enterprise.

It is therefore apparent that if by relating the New Zealand wheat price to world markets the prices received by producers for crops other than wheat can be increased then the financial viability of cropping in Canterbury will improve.

If this is not achieved and the price received for livestock products continues to respond to world inflationary pressures then the significance of livestock on mixed cropping properties in Canterbury will expand.

THE WHEAT ENTERPRISE

How profitable is wheat production? Table 2 summarises the position over the last three seasons. It is apparent that, in Canterbury, increasing basic wheat price has not offset decreasing yields. A 29% increase in direct costs, plus a 57% increase in machinery overheads has meant that the gross margin less machinery overheads in Canterbury have fallen by nearly 35% over the three seasons 1976-77 to 1978-79. However it should be noted that had wheat yields in 1978-79 equalled those achieved in 1976-77, increasing direct costs and increasing machinery overheads would have been covered and returns to growers would have

TABLE 2. WHEAT GROSS MARGIN PER HECTARE

	Canterbury			*Southland*		
	1976-77	*1977-78*	*1978-79*	*1976-77*	*1977-78*	*1978-79*
Yield per Hectare (tonnes)	3.40	3.1	2.78	4.54	4.46	4.76
Gross Revenue ($)	360.73	369.38	343.94	466.47	515.90	593.41
Direct Costs ($)	95.26	111.27	122.83	168.59	171.64	209.49
Gross Margin ($)	265.47	258.11	221.11	297.88	344.26	383.92
Machinery Overheads ($)	51.69	68.90	81.15	75.96	113.38	130.29
Gross Margin less Machinery Overheads ($)	213.78	189.21	139.96	221.92	230.88	253.63

Source: Economic Survey of N.Z. Wheatgrowers Enterprise Analysis No. 1 and No. 3.

been constant at $213 - 216 per hectare. In Canterbury therefore, falling production and not prices has been the major factor contributing to the reduced profitability of wheat production.

In Southland both yield per hectare and price have increased, offsetting a 24% increase in direct costs and a 72% increase in machinery overheads with the result that in Southland the average return from wheat has increased from $222 to $254 per hectare. Once again the effect of yield should be noted. Given a constant 1976-77 yield the basic wheat price increase would have covered increases in both direct costs and machinery overheads. The fact that wheat returns in Southland have increased can be directly attributed to the increase in production per hectare.

What are the prospects for the 1980-81 season? The basic wheat price of $167.00. per tonne has already been announced. If we can assume at this stage that costs will increase by twenty percent - the 1979-80 increase was assessed at sixteen percent - then a wheat costing could be summarised as follows using a three year average yield.

TABLE 3. 1980-81 ESTIMATED WHEAT GROSS MARGIN PER HECTARE VALUES QUOTED ARE IN TONNES AND DOLLARS

	Canterbury	*Southland*
Yield per Hectare	3.09	4.59
Gross Revenue	516.03	766.53
Direct Costs	147.40	251.39
Gross Margin	368.63	515.14
Machinery Overheads	96.18	156.35
Gross Margin less Machinery Overheads	272.45	358.79

It is immediately apparent that given average production per hectare the increase in the basic wheat price for the 1980-81 season should cover the foreseeable input cost increases as well as increasing the overall level of wheats financial viability. However, the real significance of the price increase is best assessed by relating the returns from wheat to the expected livestock returns at two levels of production.

TABLE 4. THE RELATIVE PROFITABILITY OF THE TWO MAJOR ENTERPRISES ON WHEAT GROWING FARMS

	Canterbury		*Southland*	
	1978-79	*1980-81 (est)*	*1978-79*	*1980-81 (est)*
Percentage wheatgrowers with gross margin per hectare from livestock exceeding gross margin from wheat at:-				
\$15/S.U.	35%	18%	17%	6%
\$20/S.U.	58%	25%	27%	13%
After allowing for machinery overheads, percentage wheatgrowers whose returns per hectare from livestock exceed wheat at:-				
\$15/S.U.	65%	37%	26%	23%
\$20/S.U.	74%	50%	48%	36%

During 1978-79 the majority of Canterbury wheatgrowers and a significant number of Southland wheatgrowers would have found livestock more profitable than wheat. Given a similar distribution of wheat yields, the announced increase in the basic wheat price, and a twenty percent increase in input costs, it is suggested that in 1980-81 wheat will again become the more profitable of the two enterprises on the majority of mixed cropping properties.

FINANCIAL VIABILITY OF MIXED CROPPING FARMS

Having established both a real and relative improvement in the profitability of the wheat enterprise can we expect a boom in wheat production? I doubt it, since the underlying problems associated with the cropping sector are not solved merely by increasing the price of wheat. Capital re-investment and resulting stress on the cash flow situation will be eased temporarily but will not be solved. Table 5, which is an analysis of wheatgrowers financial statements for 1977-78, considers an intensive cropping property where over half of the gross farm income is received from cropping and compares it with a livestock property where less than a quarter of gross farm income is received from crops.

TABLE 5. CASH FLOW STATEMENT 1977-78

	Livestock properties		*Intensive cropping*	
Total area (ha)		213.4		233.6
Stock units		2,877		1,595
Area crop (ha)		15.5		103.3
Wheat percentage area crop		73.6		38.1
Cash farm income		55,801		73,532
Stock purchases	4,634		7,125	
Cash farm expenses	32,440	37,074	49,373	56,498
Cash farm surplus		18,727		17,034
Non farm income		2,674		3,134
Increase in term liabilities		2,635		6,643
Sale of assets		2,535		5,465
Total available cash		26,571		32,276
Capital expenditure	9,999		18,243	
Loan repayments	2,532		6,240	
Personal drawings	8,214		10,048	
Taxation	5,422	26,167	4,239	38,770
Cash surplus (deficit)		404		(6,494)

Source: Economic Survey of N.Z. Wheatgrowers Financial Analysis 1977-78.

From these figures the following points should be noted:

* On livestock properties with less than a quarter of their gross farm income from crop, cash farm surplus covered personal drawings, taxation and loan repayments plus 26% of the capital expenditure. The balance of the capital expenditure came from non farm income, increase in term liabilities and sale of assets. At the start of the year seasonal overdraft at the stock firm or bank plus sundry creditors exceeded cash reserves and sundry debtors by just over $1,400. The marginal cash surplus will have in fact improved the liquidity situation.

* On intensive cropping properties cash farm surplus covered personal drawings, taxation and only 44% of loan repayments. Increased term liabilities, sale of assets and non farm income covered the balance of loan repayments and 64% of capital expenditure. The balance of capital expenditure came from the run down of cash reserves held in the current account. Given that at the start of the year seasonal overdraft at the stock firm or bank and sundry creditors exceeded cash reserves and sundry debtors by over $12,700 this financing of capital expenditure from the current account only served to worsen an already tight liquidity situation.

The situation whereby cash farm surplus is insufficient to cover personal drawings, taxation and existing loan repayments and where net capital re-investment required to maintain the farming programme is financed by increasing term liabilities still further and by reducing liquid cash reserves cannot be continued indefinitely.

FUTURE POLICY DECISIONS

The intensive cropping property cannot expect an increase in the wheat price on its own to resolve this situation. Wheatgrowers must firstly limit capital investment to "essential" replacements and avoid "luxury" investment to the extent that farming patterns may have to be altered in order to accommodate smaller or less technologically advanced plant.

Wheatgrowers must pay more attention to detail and endeavour to increase per hectare production. This, coupled with the increase in the basic wheat price, will alleviate much of the pressure on the cash flow. The ability to turn that cash deficit into a cash surplus, at least in Canterbury, will largely depend on whether or not the increased wheat price will significantly improve the prices received by growers for crops other than wheat. Having achieved a cash surplus the extent of this improvement will largely be in the control that wheatgrowers are able to exert over capital re-investment.

The place of wheat has changed. It is no longer the foundation upon which a mixed cropping farm is built; it is merely one of the four corner stones. Those who accept this fact will adapt to growing wheat in the 1980's.