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SOME ESTIMATES OF COSTS AND RETURNS FOR SUGAR BEETS
COMPARED WITH OTHER ROW CROPS
Central New York
1964-65

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Farmers should make an estimate of expected costs and returns for a new crop like sugar beets compared with other row crop alternatives for their own farms in order to evaluate how this new crop will fit into their respective situations. The following estimates have been made to illustrate the process by which such estimates can be made and to indicate some of the assumptions on practices, yields, prices and costs that need to be made.

Yields

To make a comparison between individual row crops one should strive to establish, in so far as possible, equal yield, price and cost alternatives. The estimates presented in tables 1 and 2 are established for equivalent yields for different crops on the same soil resource. Four crops are considered:

Corn for grain
Dry beans
Snap beans for processing
Sugar beets

It is assumed that a farmer with above average ability with row crops is managing the farm and that he has equal skill and information about all of the crops compared. Average yields of 90 bushels of corn for grain, 18 cwt. or 30 bushels of dry beans, 2.5 tons of snap beans, and 16 tons of sugar beets are suggested as equivalent levels of production for the top 25 percent of men growing these crops. These yields are averages to be achieved over a period of years. For any individual year a farmer could have either higher or lower yields for any of the crops. These estimates are based on the judgment of staff members in the departments of agronomy, agricultural economics and vegetable crops.

Prices

To estimate costs and returns prices for a product must be estimated. Commonly past experience provides a good guide to what may happen in the future. As a result the average price received in New York for each of the crops during the past five years is indicated in table 1. The Michigan price for sugar beets was used since sugar beets have not been grown in this state recently. In general the projected prices for the immediate future follow closely the prices based on past experience. Since the snap bean price has been trending downward and supply continues to expand, this price has been dropped below the five year average and approximates the last two years' experience. If one has had a different experience or has a special market for individual crops these should be reflected in his own estimates.

Table 1. BASIC ASSUMPTIONS USED TO DEVELOP ESTIMATES
OF COSTS AND RETURNS FOR ROW CROPS
(Central New York, 1965)

	Corn for grain	Dry beans	Snap beans for processing	Sugar beets
	<u>per acre</u>			
<u>YIELD LEVEL</u>	90 bu.	18 cwt.	2.5 tons	16 tons
<u>PRICES:</u>				
Average price received for the past 5 years	\$1.30/bu.	\$7.60/cwt.	\$97.00/ton	(Michigan) \$13.00/ton
Projected price	\$1.30/bu.	\$7.50/cwt.	\$90.00/ton	\$13.00/ton
<u>RATES PER ACRE:</u>				
Seeding	10 qts.	80#	90#	2.5#
Fertilizer				
Pounds of N-P-K per acre	80-40-40	30-60-60	30-90-30	80-160-120
Insect spray		1# sevin	1# sevin	Treatment depends on insect popula- tion*
Herbicide				
Material	Atrazine banded	Dinitro banded	Dinitro banded	Endothol-TCA banded
Amount	2#	1 gal.	1 gal.	2 gals.
<u>OTHER:</u>				
Labor - All regular labor charged at \$2.00 per hour				
Tractor - All tractor hours charged at \$1.30 per hour				
Snap bean harvesting - Assume 100 acre minimum				
Corn drying - 25% moisture corn dried to 13.5% - \$4.50 per ton				
Sugar beets - hauling - assume \$1.60/ton within 20 miles of plant harvesting cost - charged at \$1.35/ton				

* Populations of flea beetles, leaf miners, and aphids may require control. Need for fungicides is not expected immediately.

Costs and Returns Estimates

Some basic assumptions on quantities of fertilizer, seed, herbicide, and insect spray are listed in table 1 to indicate materials that would be recommended or needed to achieve these levels of production. Individual farmers of course would vary the quantities for their own particular situation or soil test.

Projected costs and returns for each of the four row crops in 1965 are presented in table 2. A brief discussion follows for each of the individual crops together with some comments about the ways in which costs and returns estimates have been made.

Corn for grain: The 90 bushel yield of corn is assumed to be produced and then sold at the time of harvest. The price reflects government support levels adjusted for transportation costs to New York State. Returns are more likely to be varied by changes in yield than in the price received per bushel. Among the items of direct cost most of the items are self-explanatory except drying. An estimate of \$10.00 per acre is used. This assumes 25 percent moisture corn dried down to 13.5 percent at a cost of \$4.50 per ton by a commercial dryer. Individual farmers who crib their corn or dry it with their own equipment might want to use different figures, although the \$10.00 cost could not be eliminated completely since storage buildings and equipment, especially when artificial heat is used, would replace a substantial part of the \$10.00 item.

A standard land charge of \$20.00 is subtracted for corn as for all of the other crops. Other indirect costs for growing and harvesting the crop follow rather closely the experience on cost account farms in New York State^{1/}. Regular labor has been charged at a rate of \$2.00 per hour. The use of tractors has been charged at a rate of \$1.30 per hour. The use of specialized equipment has been included at average rates for cost account farms. In general these figures represent situations where at least 40 to 50 acres of corn for grain are grown and where part of the specialized planting and harvesting equipment have been partially depreciated.

Dry beans: Yields in dry beans are somewhat more variable from year to year than for corn. It is assumed that beans will be field dried and sold at the time of harvest. The price of \$7.50 per ton is considerably lower than the market price in the early fall of 1964, however it follows past patterns quite closely. Among the direct cost items the outlay for seed and fertilizer, insect spray and herbicides is easily computed for individual situations. Seed costs will generally be the large item. A constant land charge of \$20.00 has been subtracted.

^{1/} Kearn, C. D., "Field Crops Costs and Returns From Farm Cost Accounts, 1960-62," A. E. Res. 79, December 1961; A. E. Res. 102, November 1962; A. E. Res. 131, December 1963.

Growing and harvesting costs have been adapted from the results of a special study on red kidney beans made in 1958^{1/}. Since cultural practices associated with growing the crop are not too different from corn, these items are basically quite similar. Harvesting costs are also similar. It is assumed that a farmer would have his own equipment to combine the crop. If harvesting were custom hired the cost might be somewhat higher per acre.

Snap beans: Snap beans and dry beans are very similar crops in their basic culture up until harvest. An average yield of two tons per acre for the state indicates that the two-and-a-half ton yield projected for above average management is quite commonly achieved. Most growers who handle this crop have large acreages. It is assumed throughout this analysis that 100 or more acres is grown.

The direct cost items for seed and fertilizer follow common cultural recommendations. Seed makes up a large part of direct costs. The same land charge is used as for the other row crops. Estimates for growing costs differ slightly from those for dry beans and corn. A little more labor has been used commonly and these figures have been adapted from a recent study of snap beans^{2/}.

Harvesting costs are figured at \$36.00 per acre. This assumes that a farmer owns his own harvesting equipment and follows rather closely the experience of large operators. Custom harvest would cost considerably more per acre at this level of yields.

Sugar beets: A 16 ton yield of sugar beets has been assumed to be comparable to yields of 90 bushels of corn, 30 bushels for dry beans and 2.5 tons for snap beans. This yield level may be easily questioned since New York growers have had very limited experience with the crop. Sixteen ton yields have been the average level achieved for the past two years in the State of Michigan and are projected here as a reasonable estimate of what might be achieved by good farmers with limited experience with this crop in New York. Again it should be expected that considerable variation around this yield will occur from year to year depending on climate, date of planting and practices followed.

^{1/} Pincock, M. Glade, "Costs and Returns in Producing Red Kidney Beans 1958," A. E. Res. 20, and A. E. Ext. 212 - Farm Management Handbook.

^{2/} Kearnl, C. D. and Foster, J. Q., "Costs and Returns on Snap Bean Production," A. E. Res. 118, June 1963.
Farm Management Handbook, A. E. Ext. 212, December 1962.
Cash Crops and Fruit Costs and Returns From Farm Cost Accounts, 1962, A. E. Res. 130, December 1963.

Table 2. ESTIMATES OF COSTS AND RETURNS FOR ROW CROPS
(Central New York, 1965)

	Corn for grain	Dry beans	Snap bean processing	Sugar beets
	<u>per acre</u>			
<u>Gross Returns</u>				
Yield	90 bu.	18 cwt.	2.5 ton	16 ton
Price	\$1.30/bu.	\$7.50/cwt.	\$90/ton	\$13/ton
Gross return/acre	\$117	\$135	\$225	\$208
<u>Direct Costs</u>				
Seed	\$ 3	\$13	\$35	\$ 2
Fertilizer	18	14	15	32
Insect spray	--	1	10	*
Herbicide	5	5	5	8
Thinning labor	--	--	--	12
Drying	<u>10</u>	<u>--</u>	<u>--</u>	<u>--</u>
Total Direct Costs	<u>\$36</u>	<u>\$33</u>	<u>\$56</u>	<u>\$54</u>
<u>Return to land, capital, equipment, and regular labor and operator's management</u>				
	\$81	\$102	\$169	\$154
Land charge	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>
<u>Return to capital, equip- ment, regular labor and operator's management</u>				
	\$61	\$82	\$149	\$134
<u>Indirect Costs</u>				
Growing:				
Labor	\$ 7	\$ 8	\$10	\$14
Tractor	4	4	5	8
Equipment and other power	5	6	7	8
Interest	1	1	1	1
All other	5	4	5	5
Harvesting:				
Labor	6	8	14	}
Tractor, truck, auto	2	4	4	
Equipment	10	9	16	
All other	<u>1</u>	<u>2</u>	<u>2</u>	
Total Indirect Costs	<u>\$41</u>	<u>\$46</u>	<u>\$64</u>	<u>\$89</u>
Return to risk and management	\$20	\$36	\$85	\$45*

* A charge of \$1-3 per acre may be required for insect sprays.

Costs associated with producing sugar beets were developed on the basis of recommended rates of seed, fertilizer and spray materials. Experience in other states summarized in A. E. Ext. 321, "A Comparison of Cost and Return Statements for Sugar Beets" were used in developing both direct and indirect costs. A charge of \$12.00 for thinning labor was included in the direct costs, even though it is expected that a machine will be used to thin beet plants in the row. This assumes that special labor will be required to complete thinning and weeding at the rate of one man day per acre after mechanical thinning has been completed.

Growing costs associated with tractors, equipment, labor and power are quite similar to those found in other states. Harvesting costs are much more difficult to estimate. It was assumed that a farmer would own trucks for hauling and harvesting equipment. Hauling was charged at a rate of \$1.60 per ton based on experience in Ohio and Michigan. If hauling is contracted, a rate of \$2.00 per ton or more might be the approximate cost. Harvesting costs are particularly difficult to estimate since the effect of stones on equipment is not known. Some western states estimate costs at about \$1.35 per ton for equipment and labor.

Comparison of Costs and Returns

The completed statements for yields of 90 bushels of corn per acre, 18 cwt. for dry beans, 2.5 tons for snap beans for processing, and 16 tons for sugar beets indicate the largest return to snap beans for processing and the smallest return to corn for grain, with dry beans and sugar beets of about equal profitability.

When one considers the relative intensity of the crops (how much is invested per acre in terms of cost) dry beans and corn for grain are considerably less intensive crops than sugar beets and snap beans. As a result the return above direct costs to land, equipment, capital, regular labor and operator's management is largest for the two intensive crops and gives greater opportunity to spread fixed costs associated with labor and specialized equipment.

It should be recognized that the level of yields assumed in this analysis are the most critical factors of all in making comparisons. Past experience with individual crops should be used in trying to make legitimate judgments for individual circumstances. One might experiment with holding costs constant once they are estimated, and then determining the yield necessary to give equivalent returns for dry beans, corn, snap beans and sugar beets. This is another way of approaching the same problem. In adapting these estimates for individual farms the prices and cost estimates should be most readily transferred. Prices charged for the use of land will vary by individual circumstances. Yield relationships as emphasized earlier should be carefully considered.