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Planning the Farm Business for the Year Ahead

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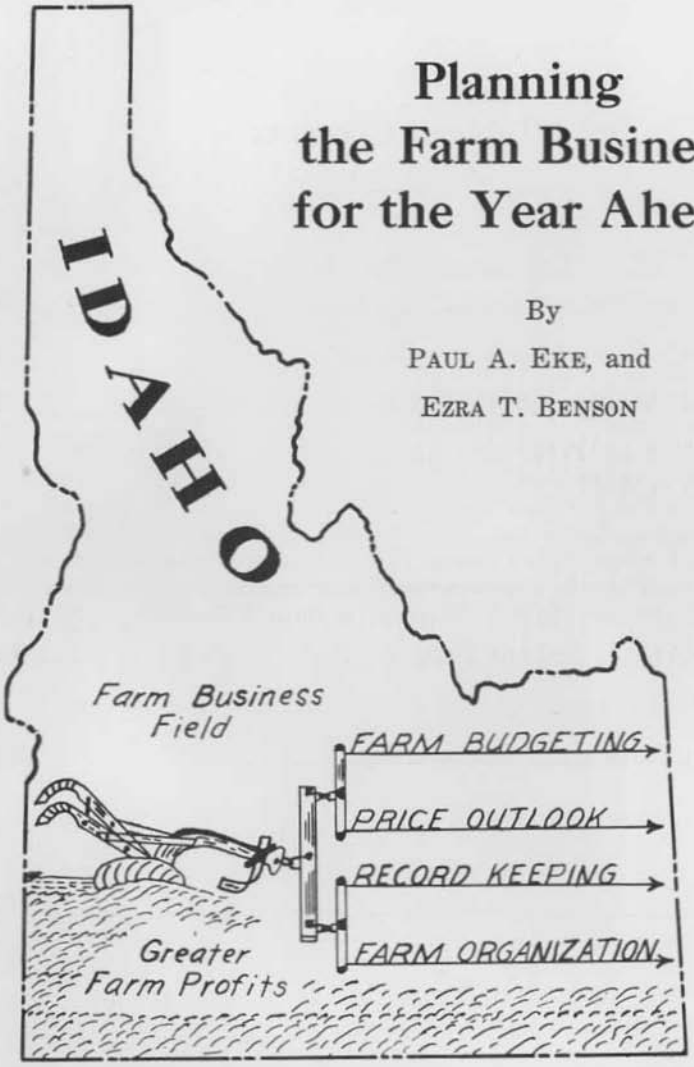

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PLANNING THE FARM BUSINESS FOR THE YEAR AHEAD[1]

by

PAUL A. EKE AND EZRA T. BENSON

A FARMER, of necessity, must plan his business at least one year ahead. Normally this is done mentally as he goes about his work. What he did in the past, the prices received for the products sold, the financial outcome for the past year and what his neighbors say they are going to do, influence his decision on the crops and livestock to raise. Available land, water, labor, equipment, breeding stock, funds and credit, limit his choice and modify his decisions. In addition, miscellaneous and often conflicting statements gathered from produce dealers, farm journals and newspapers have some influence on the plans of the farmer. As a result, the program for the year is usually not wisely planned, nor is the plan in mind carried out consistently.

A better method of planning is to use a written budget in choosing crops and livestock enterprises and in making up the production program. A written budget has the advantage of making it possible to compare in dollars and cents the probable returns from different plans which may be adopted with the return from the present production program if followed another year without change. More specifically, a farm budget "is a plan for the use of the farmer's time, land, equipment and other productive resources for one year. It shows the kind and acreage of crops to be grown, the kind and numbers of livestock to be kept, the estimated production and income to be obtained from each and the contemplated expenditures connected with the operation of the farm."[2]

1 The methods for planning herein contained have been developed in large part from the following three farm management research projects: (1) "Farming Systems for Eastern Washington and Northern Idaho," by Severance, Hunter and Eke; (2) "Farming Systems for Twin Falls County, Idaho," by Hunter and Eke; (3) "Farming Systems for Idaho Falls Area," by Eke and Johnson. Four county farm management conferences held in Idaho since 1929 have aided in arriving at the order of presenting the budget method herein contained.

2 Kentucky Bulletin No. 312, page 606.

Reasons for Budgeting

Several major reasons may be mentioned for budgeting the farm business. First, budgets serve as the best known method for selecting the most profitable crop and livestock enterprises and the acreage and number of each. Second, a budget is valuable as a guide in carrying out any changes decided upon. As a blue print guides the carpenter and prevents waste of material, so the farmer can make the proposed changes progressively and in the most economical manner with a budget before him. Fields may be rearranged, ditches and fences moved, and young stock purchased or raised to carry out the plans chosen through budgeting. Third, a budget acts as a guide in the details of farm management after all major plans have been decided upon and put into practice. For example: (1) Plans can be made to meet the expenses listed in the budget; (2) a labor program can be planned to secure economy and efficiency; (3) a more correct balance between winter feed and pasture requirements can be worked out for livestock as well as between acreages of feed crops and numbers of livestock; (4) more accurate estimates of the amount of seed, feed, fertilizer, equipment and other supplies can be made; (5) the farmer's credit can be improved by having a budget available; (6) family expenditures can be adjusted to fit probable earnings.

Important Uses of the Farm Budget

Budgeting can be used to estimate the returns from the whole farm business and also from the various crops which may be grown and the livestock which may be raised. From these estimates comparisons can be made which may act as a basis for choosing the more profitable ones. In order to make these comparisons it is necessary to budget a production program for the whole farm with a particular crop or livestock enterprise included, and then to budget the same program with some other enterprise in its place. For example, a crop farming program may be budgeted first with potatoes and then with sugar beets in place of potatoes. The difference in the returns of these programs will give an estimate of the

profitableness of potatoes compared to sugar beets. In order to present this method more clearly, Table I[1] is included.

Table I shows the expenses and returns of two crop plans, differing only as to acreages of beets and potatoes, for the last three seasons of 1929, 1930, and 1931. It is at once apparent that budgeting the cultivated crop program in such a manner as to have had more potatoes in 1929 and 1930 and more sugar beets in 1931 would have been the most profitable plan. Here, it should be remembered that average yields for this soil and average prices and costs for these years were used in the calculations.

In the spring of 1929, the price outlook for potatoes was encouraging. In that year Crop Plan II with no beets had the better prospects for a larger *labor income* and the actual prices received for this potato crop made Plan II by far the more profitable. In 1930 the outlook for potatoes was poor, while the contract price of sugar beets had not yet been reduced. Nevertheless, due to a short crop in some middle western potato sections, Plan II with no sugar beets gave a slightly larger *labor income.* In 1931 the outlook was very poor for potatoes, but fair for beets even though the price of beets had been reduced $1.00 per ton. As was expected, Plan I which included sugar beets gave $180 more *labor income.*

1 The budget method illustrated in Table I has the advantage of taking into account the handicaps and restrictions which the inclusion of a certain enterprise may have upon others.

TABLE I

A Comparison of the Relative Profitableness of Potatoes and Sugar Beets for the Years 1929, 1930, and 1931.

Returns and Expenses	CROP PLAN I In System B with sheep on silt loam soil on a project in southern Idaho (80 acres) *Acres* Alfalfa ..... 11.7 Sweet clover..... 11.5 Wheat ..... 11.5 Barley ..... 3.9 Potatoes ..... 15.4 BEETS ..... 15.4 Total 69.4	CROP PLAN II In System B with sheep on silt loam soil on a project in southern Idaho (80 acres) *Acres* Alfalfa ..... 11.7 Sweet clover..... 11.5 Wheat ..... 11.5 Barley ..... 3.9 Potatoes ..... 15.4 POTATOES ..... 15.4 Total 69.4
Estimated on the Basis of 1929 Prices and Costs		
Income from sales	$7,627	$10,348
Current expenses	2,033	1,930
Balance	5,594	8,418
Depreciation and upkeep	457	500
FARM INCOME	5,137	7,918
Int. on capital	939	939
LABOR INCOME	4,198	6,979
Estimated on the Basis of 1930 Prices and Costs		
Income from sales	$4,133	$4,120
Current expenses	2,012	1,822
Balance	2,121	2,298
Depreciation and upkeep	457	500
FARM INCOME	1,664	1,798
Int. on capital	917	917
LABOR INCOME	747	881
Estimated on the Basis of 1931 Prices and Costs		
Income from sales	$3,017	$2,781
Current expenses	1,574	1,458
Balance	1,443	1,323
Depreciation and upkeep	425	485
FARM INCOME	1,018	838
Int. on capital	769	769
LABOR INCOME	249	69

To compare profitableness of potatoes and sugar beets for a particular year, the method shown in Table I may be used. Crop Plan I is used as the basis for comparison. In Crop Plan II, 15.4 acres of potatoes have been substituted for 15.4 acres of sugar beets which appear in Crop Plan I. The difference in *labor income* between Crop Plans I and II gives an estimate of the advantages of one crop over the other. In this Table, beets gave a larger net return in 1931 than potatoes, but in 1929 and 1930 potatoes gave the larger net return. These estimates were based upon average yields of the past few years and upon average prices and costs for 1929, 1930, and 1931. In the same manner other crops in the rotation may be compared as to probable net returns for the year ahead.

All labor used in these budgets to supplement the operator's labor is hired. Available family labor may change the relative farm income for the two crop plans by reducing hired labor expenses.

Conditions undoubtedly will continue to be such that a wise choice of crops, arrived at by budgeting in accordance with price outlook information, will result at the end of the year in a larger *labor income,* also cause less than the usual shifting.

Furthermore, budgeting serves very well in choosing a farm of the most profitable size. Table II gives an estimate of the difference in *farm income* and *labor income* on 40, 80, and 120 acre farms for the years 1930 and 1931. The larger farms gave the larger returns both years in terms of either *farm income* or *labor income.* It is clear that a farm which is too small may be a serious handicap in making a satisfactory living, while one which is too large may result in a loss. There is a best size of farm for each farmer under a given set of conditions and it will pay him to discover this size by adequate study of the matter. Budgeting will assist in the solution of this problem. This kind of budgeting is especially useful to the renter and to the owner who can rent more land or to the man who is planning to buy a farm.

TABLE II

Comparing the Returns and Expenses of the Same Systems on Farms Varying in Size

Returns and Expenses	40 Acres System B with 7 cows on silt loam soil on a project in southern Idaho	80 Acres System B with 15 cows on silt loam soil on a project in southern Idaho	120 Acres System B with 23 cows on silt loam soil on a project in southern Idaho
	Hay Rotation / Acres / Pasture Rotation / Acres	Hay Rotation / Acres / Pasture Rotation / Acres	Hay Rotation / Acres / Pasture Rotation / Acres
	Wheat 3.8 / Barley 2.8 Alfalfa 3.8 / Swt. clo. 2.8 Alfalfa 3.8 / Potatoes 2.8 Alfalfa 3.8 / Beets 2.8 Potatoes 3.8 Beets 3.8 Total 22.8 / Total 11.2 (3 horses)	Wheat 7.4 / Barley 6.1 Alfalfa 7.4 / Swt. clo. 6.1 Alfalfa 7.4 / Potatoes 6.1 Alfalfa 7.4 / Beets 6.1 Potatoes 7.4 Beets 7.4 Total 44.4 / Total 24.4 (4 horses)	Wheat 11.1 / Barley 9.2 Alfalfa 11.1 / Swt. clo. 9.2 Alfalfa 11.1 / Potatoes 9.2 Alfalfa 11.1 / Beets 9.2 Potatoes 11.1 Beets 11.1 Total 66.6 / Total 36.8 (6 horses)
Estimated on the Basis of 1930 Prices and Costs			
Income from sales	$2,120	$4,394	$6,676
Current expenses	887	1,947	3,116
Balance	1,233	2,447	3,560
Depreciation and upkeep	398	469	566
FARM INCOME	835	1,978	2,994
Interest on capital	506	943	1,351
LABOR INCOME	329	1,035	1,643
Estimated on the Basis of 1931 Prices and Costs			
Income from sales	$1,553	$3,222	$4,884
Current expenses	730	1,477	2,502
Balance	823	1,745	2,382
Depreciation and upkeep	383	437	514
FARM INCOME	440	1,308	1,868
Interest on capital	428	803	1,139
LABOR INCOME	12	505	729

System B, with enough dairy cows to consume all available hay and pasture is compared for FARM INCOME and LABOR INCOME on 40, 80, and 120 acre farms on silt loam soil on a project in southern Idaho for the years 1930 and 1931. It is at once apparent that the larger farms gave the larger FARM INCOME as well as LABOR INCOME for both

years. The gross return on the 40 acre farm was too small in spite of much lower current expenses, to allow a satisfactory FARM and LABOR INCOME for most farm families. To interpret the returns during years of depression like 1930 and 1931, one should first find the BALANCE after current expenses are paid. If machinery purchases and building repairs can be postponed and no interest on debts are due, the farmer will have the BALANCE for family living. This Table shows the BALANCE to be $823 on 40 acres, $1,745 on 80 acres, and $2,382 on 120 acres in 1931. In 1930 these figures were about 50 per cent higher. In the long run, machinery must be purchased and buildings repaired, and by deducting this item, the FARM INCOME is obtained which gives the larger farms still more of an advantage. If interest on the investment is calculated and deducted, the LABOR INCOME (wages for labor and management) is obtained, which is much greater on the larger farms.

Careful budgeting is needed also in obtaining useful comparisons of one kind of livestock with another. Budgets using probable prices for the year ahead are not sufficient. It is best to make a budget with the prices and costs of each year for at least five years back, and also to make a study of the outlook for the next few years. The best sources of information for the future of each livestock enterprise is the position of each on the price and production cycle. See Fig 3, for these cycles.[1] With this information along with other general information bearing on livestock prospects, an average price for the next few years may be estimated for use in budgeting. Error, of course, is possible, but since a choice must be made, it is better to use the best information available than to make a blind guess. After a decision is made, it is usually expensive to change to some other kind of livestock. If such a change appears desirable, careful budgeting should be resorted to in making sure that a change will give greater returns. When more than one kind of livestock is kept on the farm, slight shifts toward one or the other to conform to the price cycle may be profitable. Moreover, the purchase, sale and raising of breeding stock may be timed to yield larger profits.

Order of Procedure in Budgeting

Probably the best time for figuring budgets and making final decisions regarding the production program for the year ahead is during the latter part of February and the month of

1 Up-to-date charts, showing cycles of beef and dairy cattle, hogs and sheep may be obtained upon request from the Extension Economist, Agricultural Extension Office, Boise, Idaho.

March. For late crops like potatoes and beans a decision can be delayed until April or May. At this time government reports on farmers' intentions to plant and to breed are available. Special price outlook reports by the Idaho Experiment Station and United States Department of Agriculture are also available.

Mapping the Farm

The first step in farm budgeting is to make a detailed map of the farm as it is. With a picture of the farm before the operator, the weaknesses in the present arrangement, size, and number of fields are at once apparent.

The rotations to be followed will determine largely the number of fields. It is desirable to have fields in each rotation uniform in size. In some cases this will necessitate drainage of wet areas and the removal of rocks and stumps. This work may often be done when other farm work is not crowding. The farm map also will suggest changes to be made in fences and ditches. All changes to be made should be considered on the basis of increased efficiency and greater net profits. A second map, showing the farm as it will appear after the changes of the first year are made, is helpful as a guide. Care should be used in making changes in order to keep the expense at a minimum. It will usually require a number of years to make the necessary changes in the farm lay-out in conformity with the long-time rotation program to be followed. These changes usually cost little and increase the appearance, productivity, and value of the farm greatly, at the same time increasing the efficiency of the man, horse, and machine labor materially.

Fig. 1 is included as a suggestion for a convenient form on which to draw an outline of the farm. The farm as a whole and each field can be fitted into this map. It may be necessary to pace off the fields in order that their location and approximate acreage may be known. The next step is to consider the number, size, and location of the fields in relation to a rotation plan to be followed. These rotation plans should be made on the basis of maintenance of soil fertility, cash crops to be grown, and feed for livestock.

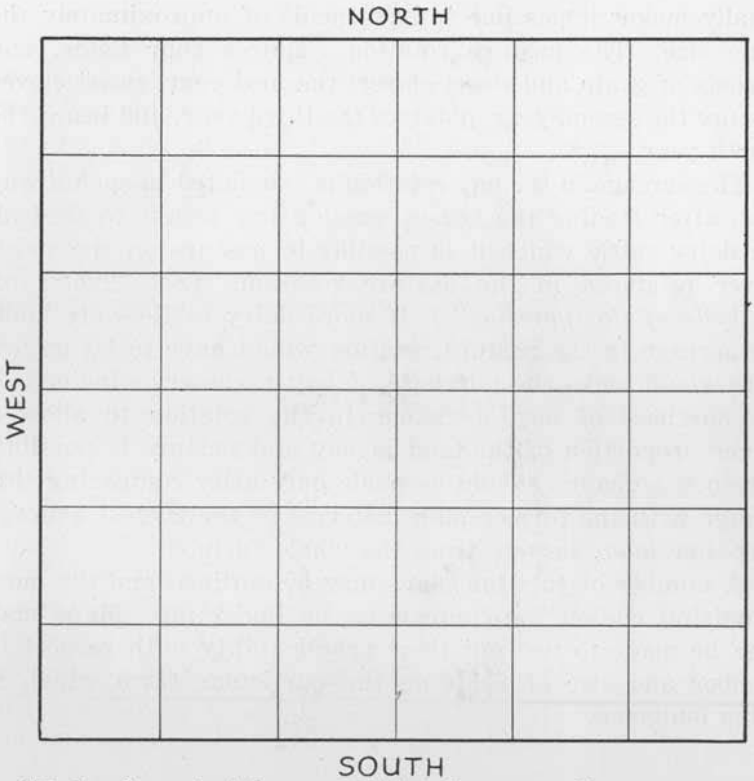

FIG. 1.—Convenient form on which to draw an outline of the farm.

Planning a Rotation

Table III is given as a suggested form for working out a rotation plan. A rotation plan for an 80 acre farm with dairy cattle is here displayed. It is desirable to have two rotations in this farm budget because both hay and pasture should be provided for the dairy cattle. Each rotation plan requires as many fields as it takes years to pass through one complete rotation. It will be noted that the hay rotation in Table III is a seven year rotation of grain and alfalfa the first year; alfalfa the second, third, and fourth years; potatoes the fifth year; sugar beets the sixth year, and beans the seventh year. This rotation requires seven fields. It is not always practical to divide the crop land into fields having exactly the same number of acres, but some rearrangement of ditches and fences

usually makes it possible to have fields of approximately the same size. The pasture rotation requires four fields, and consists of grain and sweet clover[1] the first year, sweet clover pasture the second year, potatoes the third year, and beans the fourth year.

The acreage in the hay rotation is calculated in such a way that, after feeding the horses, enough hay is left to feed all the dairy cattle which it is possible to pasture on the sweet clover produced in the pasture rotation. (See *"Notes on Methods of Computation".)* If more dairy cattle were kept, the acreage in the pasture rotation would have to be larger. This would make the purchase of hay necessary. Instead of the purchase of hay, a change in the rotation to allow a larger proportion of the land in hay and pasture is possible, but such a change should be made only after comparing this change with the former plan in terms of the largest average long-time *labor income* from the whole farm.

A number of rotation plans may be outlined and the most promising chosen for comparison by budgeting. Maps may then be made to test out their practicability with respect to number and size of fields on the particular farm which is being budgeted.

1 Ladino clover yields well on some projects in southern Idaho while grass mixtures produce better at higher altitudes. Sweet clover will do well on all projects in southern Idaho and eastern Idaho.

TABLE III

Rotation Plan Followed on an 80 Acre Farm With Dairy Cattle on Sandy Loam Soil on a Project in Southern Idaho, to Give Results Found in Table IV

A Seven Year Hay Rotation (44.1 Acres)

Fields	1930	1931	1932	1933	1934	1935	1936
No. 1	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Potatoes (6.3 acres)	Beets (6.3 acres)	Beans (6.3 acres)
No. 2	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Potatoes (6.3 acres)	Beets (6.3 acres)	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)
No. 3	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Potatoes (6.3 acres)	Beets (6.3 acres)	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)
No. 4	Alfalfa (6.3 acres)	Potatoes (6.3 acres)	Beets (6.3 acres)	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)
No. 5	Potatoes (6.3 acres)	Beets (6.3 acres)	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	(Alfalfa (6.3 acres)
No. 6	Beets (6.3 acres)	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Potatoes (6.3 acres)
No. 7	Beans (6.3 acres)	Wheat (alfalfa) (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Alfalfa (6.3 acres)	Potatoes (6.3 acres)	Beets (6.3 acres)

A Four Year Pasture Rotation (25.2 Acres)

Fields	1930	1931	1932	1933
No. 11	Barley (sweet clover) (6.3 acres)	Sweet clover pasture (6.3 acres)	Potatoes (6.3 acres)	Beans (6.3 acres)
No. 2	Sweet clover pasture (6.3 acres)	Potatoes (6.3 acres)	Beans (6.3 acres)	Barley (sweet clover) (6.3 acres)
No. 3	Potatoes (6.3 acres)	Beans (6.3 acres)	Barley (sweet clover) (6.3 acres)	Sweet clover pasture (6.3 acres)
No. 4	Beans (6.3 acres)	Barley sweet clover) (6.3 acres)	Sweet clover pasture (6.3 acres)	Potatoes (6.3 acres)

When livestock is kept, two separate rotations are advisable. One may be called the hay rotation in which alfalfa is used as a soil restoring crop, and the other the pasture rotation in which sweet clover may be used to restore soil fertility. A seven year hay rotation for a sandy loam soil, during which alfalfa is grown three years out of seven, is illustrated above. A four year rotation with one year of sweet clover pasture is shown for the pasture rotation. The amount of land in each rotation will depend upon the class of livestock kept. Dairy cattle will need more

1 That the fields in both rotations are 6.3 acres each for both rotations is a matter of mere chance and not to be expected in other rotation plans.

land in the hay rotation while sheep require more land in the pasture rotation. The rotations should be balanced as to acreage to make the hay raised sufficient to feed the horses and all the cattle or sheep which can be pastured. Too much or too little of hay or pasture may be a waste.

On a farm where cash crops are the most profitable sources of income, the rotation should be planned to grow as many of these crops as possible and yet to grow, at the same time, enough legumes to maintain or improve soil fertility.[1] Enough livestock may then be budgeted to consume hay, pasture, and by-products, such as culls, chaff, and straw. On a farm where livestock, such as dairying or sheep, is the most profitable enterprise, the rotation should allow for an abundance of feed and pasture crops with cash crops fitted in as supplementary enterprises. The object, of course, in budgeting, is to find out which combination of available enterprises is likely to give the most satisfactory results in the form of an average long-time *labor income.*

Filling a Farm Budget Form

Table IV presents a budget form for estimating the receipts, expenses and labor income for a certain production program on a particular farm. For purposes of illustration, this form has been filled out with a production program designated as System "A" for an 80 acre farm on irrigated sandy loam soil on a project in southern Idaho, with dairy cattle as the livestock enterprise. Average prices and costs for 1931 are used in making cost and return estimates. The rotations used in this budget plan have been shown previously in Table III. The acres of each crop, as shown in Table III, have been entered in column 1, the first left-hand column of the budget form. In a like manner the acres of crops budgeted for any particular farm may be entered in this column. Column 2 contains the average yields obtained on a reasonably well managed farm on which a rotation similar to this one has been followed. In planning for a particular farm, yields which may be expected on particular fields should be estimated and entered here. Column 3 should be used for the total estimated amounts produced.

[1] It should be remembered that the types of soil and the condition of the soil on the individual farm largely determine the kind of rotation to be used.

Estimates of the feed requirements for the livestock to be kept during the year should be entered in the appropriate columns 5 to 8. If seed and home requirements are now estimated in column 9, and the total of feed, seed and home requirements entered in column 10, the amount for sale can be calculated by subtracting these totals from column 3. These amounts should then be entered in column 12.

For illustrative purposes, column 13 contains the average prices received by farmers in south-central Idaho during 1931. From these prices, the returns from each product and the total value of sales are calculated in column 14. The farmer, budgeting his own farm program for the year ahead, should estimate the prices which are likely to prevail when his crop is ready for sale, and enter these estimates in column 13. More will be said of the method to use in making estimates of probable prices in succeeding paragraphs, under the caption, "Estimating Prices and Price Trends." The value and necessity of making such estimates will also be demonstrated.

Livestock and livestock products should be entered in the space provided in Table IV. The figures shown in Table IV will illustrate the method to be used. Care should be exercised in including all farm enterprises which produce an income.

The last column of Table IV lists the expenses of the farm under the two headings "Current Expenses" and "Depreciation and Upkeep." In filling this column, the farmer will have to rely largely on his past experiences. If he has kept a set of farm accounts, he will not have to depend to such a large extent on memory. These expenses should be estimated by items, having in mind the crops and livestock which he is budgeting for the particular production program under consideration. Usually, it is a good plan to budget first the production plan which has been followed the past few years. Expenses may be remembered with a fair degree of accuracy or estimated for this system. This list of expenses will assist in estimating expenses for modified production programs which may be budgeted for comparison.

A financial summary is given at the foot of Table IV. *Current expenses* are subtracted from *income from sales* to obtain the *balance*. From this sum depreciation and upkeep

TABLE IV

Sample Farm Budget of System A on an 80 Acre Farm for the year 1931 with Irrigated Sandy Loam Soil on a Project in Southern Idaho With Dairy Cattle as the Livestock Enterprise

Crops and Livestock	Acre or No.	Yield or amt.	Total production	Feed, and seed requirements[3]								Deficit (to be purchased)	Income from sales			Expenses	
				Dairy cattle	Sheep	Hogs	Poultry	Horses	Seed	Home use[2]	Total		Amount for sale (quantity)	Price (dollars)	Total value (dollars)		
Crops	(1) Acre	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)	(11)	(12)	(13)	(14)	(15)	
Alfalfa	18.9	4	76 T	61				15								*Current Expenses:*	
Pasture	1.0															Hired labor	$ 267
Clover																Contract labor	294
Barley	6.3	45	284 bu.	113 cwt.					630 lbs.		119 cwt.		23 cwt.	.74	17.00	Seed bought	49
Oats																Feed bought	21
Wheat	6.3	35	221 bu.						11 bu.		11 bu.		210 bu.	.35	74.00	Grinding grain	12
Corn																Cleaning seed	2
Sweet clover pasture	6.3															Cleaning peas or beans	
Potatoes	12.6	175	2205 bgs.													Threshing	60
1's		114	1436 cwt.										1436 cwt.	.50	718.00	Grading	
2's		44	554 cwt.						114 cwt.		114 cwt.		440 cwt.	.10	44.00	Hauling	99
Beets	6.3	14	88.2 T beet tops fed										88.2 T	6.50	573.00	Gas and oil (farm use)	39
Peas																Sacks and twine	15
Beans	12.6	1800	227 cwt. bean straw fed						880 lbs.		880 lbs.		218 cwt.	1.25	272.00	Taxes [2]	211
																Water	188
Livestock	*No.*															Telephone and electricity	24
Dairy cows	15			750 lbs. whole milk fed									4	18.00	72.00	Insurance	3
Butter fat		300	4500 lbs.	6165 lbs. skim milk fed									4470 lbs.	.25[1]	1117.00	Veterinary	30
Heifers	5															Cash repairs	69
Calves	5															Misc. cash expenses	
Bulls	.5															Total	$1,383
Steers																*Depreciation and Upkeep:*	
Hogs																Farm buildings	$ 107
Sheep																Fences	17
Poultry																Equipment for dairy	30
Horses																Machinery	138
																Harnesses	17
																Head gates	
																Automobile (farm use)	87
																Horse replacement	26
																Bull replacement	10
																Total	$ 432
														Total	2887.00		

Interest on real estate, $10,000 @ 6%	$600	Income from sales	$2,887	Farm Income	$1,072
Interest on machinery and equipment, $1,117 @ 8%	89	Current expenses	1,383	Interest on capital	803
Interest on livestock, $1,430 @ 8%	114	Balance	1,504	Labor Income	269
Total Interest	$803	Depreciation and upkeep	432	Family Living From Farm Operator's Earnings	
		Farm Income	$1,072		

[1] This is the price of butter fat sold as whole milk to creamery after hauling charge is deducted.
[2] To simplify this sample budget, produce for home use has not been set aside.
[3] The feed requirements here used are estimates of the feed requirements of dairy cows of this productive capacity, by the Department of Dairy Husbandry, University of Idaho.

are subtracted to give the *farm income*. *Interest* on the capital invested must be subtracted from this amount to give the *labor income*. It is labor income that is the most accurate measure of the success of a certain farm program, and it should be used for comparing the various programs budgeted. The rental value of the dwelling and the value of the produce from the garden and of other products for home use are important items which can be added to labor income to obtain the *operator's earnings*.

To interpret the returns during years of depression like 1930, 1931, and 1932, one should first find the balance after current expenses are paid. If machinery purchases and building repairs can be postponed and no debts or interest on debts are due, the farmer will have the balance for family living. Under these circumstances, farmers can continue secure during a protracted period of depression.

Forms of the type used above may be constructed by ruling them upon sheets of blank paper or they may be obtained by writing the Extension Economist, Agricultural Extension Office, Boise, Idaho.

Estimating Prices and Price Trends

Budgeting for the year ahead requires the use of expected prices. Most farmers have in the past estimated future prices by what they received the past year or two. This has very often proved to be erroneous and resulted in loss because high prices have in almost all instances caused great numbers of farmers to increase production and to force prices downward. When prices have been low the reverse has been true. It has, therefore, become necessary to obtain information on what farmers intend to plant and to breed if future prices are to be estimated. Crop and livestock reports on intentions to plant and breed are being collected by the United States Department of Agriculture. These reports are issued before the planting or breeding season in time to warn the farmers what other producers in the country are intending to do. Likewise, reports of probable production in foreign countries are obtained. The above information, in addition to information bearing on the probable buying ability of consumers and

current prices are reviewed monthly in *The Idaho Agricultural Situation*. A special Outlook number is prepared at least once each year, usually late in February. Another will usually be issued in August or September in time to assist in planning the livestock programs for the following year. These are issued from the Boise office of the Agricultural Extension Service, University of Idaho, College of Agriculture, and will be sent to anyone free upon request. The special Outlook numbers of *The Idaho Agricultural Situation* are of special value to farmers in planning for the year ahead. These, along with daily market reports, also available at the Boise office, should be secured and used.

With the facts gathered from the above reports, which are the most reliable obtainable, the farmer is in a position to make a much more accurate estimate of what future prices will be, than by following past prices, "hunches" and guesses. The price outlook for a particular crop as given in the outlook reports named above is often stated in terms of what happened in some past year or in comparison to average prices prevailing during past years. These comparisons can assist the farmer is arriving at an estimated future price for his crop. Prices of expense items such as labor, seed and machinery should also be given attention with respect to prospective costs.

The desirability of budgeting a production program based on price outlook information is demonstrated by Fig. 2 and Fig. 3. Fig. 2 shows how the acreage and prices of potatoes have fluctuated in opposite directions since 1920 with the exception of the 1924-1925 season. Since intentions to plant in terms of acres have been quite accurately told during February and again in March or April of each year before the late crop was planted, a farmer in Idaho could have become familiar with these intentions and could have planned to have had more potatoes when prices were high and to have planted fewer acres when prices were low. As a matter of record, farmers in Idaho planted in such a manner as to have harvested more potatoes when other states planted large acreages and prices were low, and planted less potatoes when other states reduced their acreage and prices were high. For example, after the low prices of 1928, the potato growers in Idaho reduced their planting about 12 per cent which resulted

in a harvested acreage of only 82,000 acres for 1929 when prices went very high. The acreages planted in 1930 and 1931 were increased with the result that in 1930, 98,000 acres were harvested and in 1931, 110,000 acres.[1] These two increases occurred in the face of intentions reports showing large increases in intended acreages in the 18 surplus late producing states for both years. The low prices for 1930 are now a matter of record even though drought reduced the acreage harvested considerably below the acreage planted. Prices were still lower in 1931. No doubt, farmers in Idaho were largely influenced in their plantings for 1930 by favorable prices received in 1929. In 1931 they were influenced by the same factor, and in addition, by the poor prospect for nearly all other possible crops. Drought prevented prices going still lower during the 1930 and 1931 seasons.

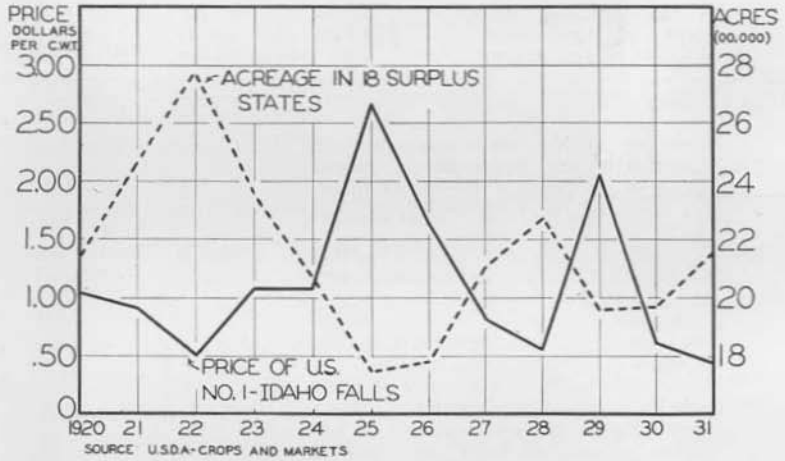

FIG. 2.—Potato prices at Idaho Falls and acreage in 18 surplus late producing states.—1920-21 to 1930-31 seasons, inclusive.

The acreage of potatoes in the 18 surplus late producing states, of which Idaho is one, varied during the 1921 to 1930 crop season from approximately 1,750,000 acres to 2,750,000 acres. The high point in acreage was reached in the 1922 crop and the low point in the 1925 crop.

Except for the 1924-25 season, prices have fallen whenever the acreage has increased. There have been two extremely low price seasons since 1920, namely, 1922-23 and 1928-29. Likewise, there have been two high price seasons, 1925-26 and 1929-30. The high prices of 1929-30 were higher than seems justified by the reduction in acreage, but low yields on account of drought were a large factor in holding prices high. The acreage in 1930 was fairly high, and prices remained rather

1 Revised figures based upon the 1930 United States Census.

low in spite of drought because of the business depression. Acreage again increased in 1931 and prices were lower than for the 1930-31 season.

The following quotations on the potato outlook by years from 1925 to 1931 were issued each February prior to planting time, in the Annual Outlook bulletins by the United States Department of Agriculture, and have been quoted in *The Idaho Agricultural Situation* for 1930 and 1931. These quotations along with figures of the acreages actually harvested each year and prices realized for these potato crops show how valuable such information would have been to a potato producer in budgeting his production program.

Year	Quotation from Potato Outlook in Annual Outlook Bulletin of U. S. Dept. of Agriculture in February, prior to planting time.	Acreage harvested in 18 surplus producing states.	Weighted average price wagon load cash to growers, per cwt., U. S. No. 1's at Idaho Falls for these crops.
1925	"Many growers, including even some who are producing potatoes at low cost per bushel, have been unduly discouraged by the ruinous prices which were paid in many localities for much of the 1924 crop."	1,789,000	$2.65
1926	"Conditions are so abnormal this spring that.... no individual farmer can afford to plant a greatly increased acreage of potatoes without taking into consideration the acreage being planted by others..... Farmers who find that many of their neighbors are planning to put in a very large increased acreage of potatoes should at least be cautious about doing the same..... Many growers who made unusual profits from the 1925 crop seem to be unduly optimistic .... this season."	1,795,000	1.69
1927	"There is a serious probability that an excessive acreage of potatoes will planted in 1927. Reports received from farmers show that a tendency to increase the acreage exists in all parts of the county, the acreage on the farms reported to date shows a net increase of 13 per cent..... Such an increase would result in much lower prices to growers."	2,106,000	.80

Year	Quotation from Potato Outlook in Annual Outlook Bulletin of U. S. Dept. of Agriculture in February, prior to planting time.	Acreage harvested in 18 surplus producing states.	Weighted average price wagon load cash to growers, per cwt., U. S. No. 1's at Idaho Falls for these crops
1928	"If these January intentions are carried out, as they were last year, there would seem to be no section of the country where the chances will be in favor of returns from potatoes comparable to those secured during the last three years."	2,276,000	$ .55
1929	"Potato growers in nearly all parts of the United States suffered such terrific losses from over-production in 1928 that there is little probability that an excessive acreage will be planted this season."	1,965,000	2.02
1930	"If the intended acreage for 1930 is planted and a yield in line with the trend in recent years is secured, the total production in the United States will be around 421,000,000 bushels which is about the quantity produced in 1924 when the December first farm price was unprofitably low. . . . . "	1,964,000[1]	.69
1931	"Increased supplies of potatoes in prospect in the 1931 crop year will probably more than offset any improvement in demand. . . . . If average weather conditions prevail during 1931, potato growers are likely to receive lower prices for the 1931 crop than were received for the 1930 crop."	2,168,000	Ave. price to April 1, 1932 .44

Fig. 3 illustrates the value of outlook information for sheep and other livestock. The graphs in the first section show U. S. sheep numbers and Idaho lamb prices by years from 1900 to 1931 inclusive. These graphs show that high prices of lambs have been followed by increasing numbers and that the increased numbers have been followed by decreased

[1] The acreage planted in 1930 was three per cent greater than that harvested in 1929 but apparently, drought was so severe as to cause the harvested acreage to be slightly lower than in 1929.

prices during three different cycles since 1905. The first high peak in prices was from 1907 to 1909, the second in 1918, and the third in 1928. It will be observed that these high prices occurred when sheep numbers were expanding and when numbers were near the high point. Lower prices followed immediately and the subsequent liquidation carried prices down to the trough of the price cycle in from two to three years. Declines in numbers continued for four years after the low price point in 1911 and for two years after the low point in 1921. Numbers of sheep were still on the increase in 1931 but a decline is anticipated during 1932 and the next two or three years. A study of the hog, dairy cattle and beef cattle cycles will show a similar tendency of prices to fluctuate in opposite directions from that of numbers. The war period from 1915 to 1920 is an exception when prices went up in spite of increased numbers because of the great demand for food for war purposes.

One cannot look at these graphs without realizing that profits would have been increased if one had adjusted the production program in such a way as to have had more stock to sell during high prices. At least, the farmer or rancher probably could have avoided the purchase of breeding stock and the expanding of the breeding herd during peak price periods, and also avoided the losses from selling them during low price periods. In the future similar situations and opportunities will probably exist. Budgeting the farm business will call attention to such situations and opportunities.

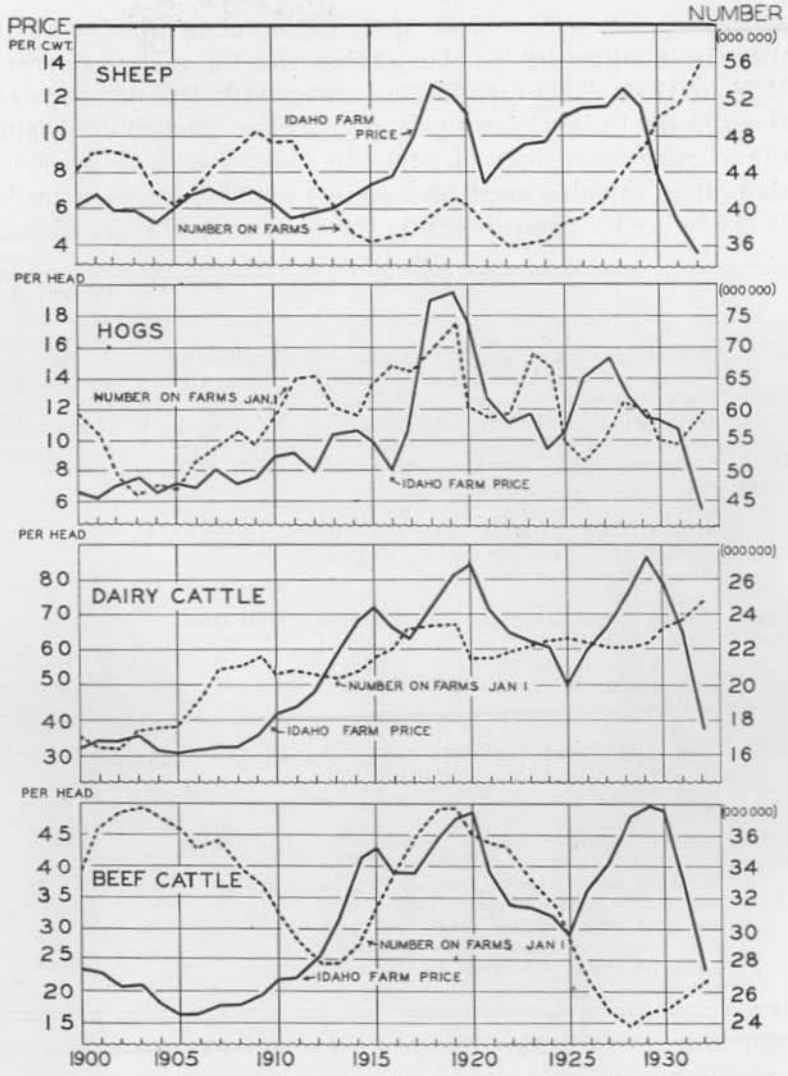

FIG. 3.—Price and production cycles of sheep, hogs, dairy cattle and beef cattle.[1]

The following quotations on the sheep outlook, which appeared in the August numbers of "Crops and Markets" of the United States Department of Agriculture and in the *Idaho*

1 Source of data: United States Department of Agriculture Yearbook. Prices and production figures taken as of January 1 of each year. Number on farms of each kind of livestock is for the United States.

Agricultural Situation since 1930, came out in time to point the way in adjusting the sheep enterprise for each year from 1928 to 1931. These quotations along with the numbers of sheep in the United States on the following January first, and the average farm price of lambs in Idaho for those seasons, show how valuable such information could have been made in budgeting the sheep program for the year and years ahead.

Year	Quotation from Sheep Outlook in "Crops and Markets" of the United States Department of Agriculture for August of the previous year.	Number of sheep and lambs in U. S., Jan. 1.	Weighted average Idaho price of lambs per head for these seasons.[1]
1928 crop	"Average prices for the year, however, are expected to be about the same as last year. . . . . The long-time outlook suggests the need of caution in regard to further expansion in the sheep industry."	44,795,000	$10.06
1929 crop	"Sheep production in the United States has been rapidly expanding and suggests the need for considerable caution in regard to further expansion."	47,704,000	8.80
1930 crop	"The long-time outlook suggests the need for caution in regard to further expansion in the sheep industry."	51,383,000	5.22
1931 crop	"There is likely to be considerable reduction in sheep numbers during the next two or three years. . . . . In the native sheep states where sheep are part of a general farm business, low prices of other farm products leave no great incentive for farmers to quit raising sheep."	52,745,000	4.05

Adjusting the Crop Program to Fit the Price Outlook

Crop Income Comparisons. Several crops may be successfully grown on the irrigated lands of Idaho. It is usually a matter of selecting the crops which have the best prospects of yielding the largest net returns. Some workable system to aid in the selection of the best paying crops would be of assistance

1 These prices were supplied by E. F. Rinehart, Field Animal Husbandman, University of Idaho, College of Agriculture. The average weight of these lambs by pools for 1928, 1929, 1930 and 1931 ranged from 74 to 75 pounds.

to the farmer. Table VI illustrates a method of comparing the probable returns from three important cash crops by means of budgeting.[1] All the detailed calculations have been omitted and only a summary of the returns and expenses is given. The prices and costs for the years 1929, 1930, and 1931 have been used. Crop Plan I is used as a basis for comparison. Each of Crop Plans II, III, and IV has in turn one field changed to another crop from the one found in Crop Plan I. For example, Crop Plan II has substituted 6.3 acres of beans for 6.3 acres of sugar beets. By comparing the *labor incomes* of Crop Plan I and II it can be seen that in 1929 Crop Plan II gave $4,763 minus $4,622 or $141 larger return than did Crop Plan I. Since the only difference in the two plans was beans in place of beets, $141 may be credited to the beans. The reverse was true when beets gave the larger *labor income* in the year 1930 and also in 1931. In a like manner Crop Plan III substitutes sugar beets for potatoes, and here again a difference is found in the labor income. Potatoes gave a larger *labor income* to the amount of $1,158 for 1929 and $133 for 1931, but in 1930 sugar beets gave $67 more than potatoes. Crop Plan IV contrasts beans with potatoes and for all three years potatoes gave larger returns. These figures are based upon prices and costs for 1929, 1930, and 1931 and are given here merely to illustrate the value of budgeting and to point out a method which may be used in planning for the year ahead.

1 Crop Plan I in this table is the same farm program as that which is used in Table IV.

TABLE VI

A Method of Comparing the Relative Profitableness of Cash Crops for Particular Seasons

Returns and Expenses	CROP PLAN I In System A with 15 dairy cows on sandy loam soil on a project in southern Idaho	CROP PLAN II In System A with 15 dairy cows on sandy loam soil on a project in southern Idaho	CROP PLAN III In System A with 15 dairy cows on sandy loam soil on a project in southern Idaho	CROP PLAN IV In System A with 15 dairy cows on sandy loam soil on a project in southern Idaho
	(80 acres) *Acres* Alfalfa ..... 18.9 Swt. clover .... 6.3 Wheat ..... 6.3 Barley ..... 6.3 Potatoes ..... 6.3 Potatoes ..... 6.3 Beets ..... 6.3 Beans ..... 6.3 Beans 6.3	(80 acres) *Acres* Alfalfa ..... 18.9 Swt. clover .... 6.3 Wheat ..... 6.3 Barley ..... 6.3 Potatoes ..... 6.3 Potatoes ..... 6.3 *Beans* ..... 6.3 Beans ..... 6.3 Beans 6.3	(80 acres) *Acres* Alfalfa ..... 18.9 Swt. clover .... 6.3 Wheat ..... 6.3 Barley ..... 6.3 Potatoes ..... 6.3 *Beets* ..... 6.3 Beets ..... 6.3 Beans ..... 6.3 Beans 6.3	(80 acres) *Acres* Alfalfa ..... 18.9 Swt. clover .... 6.3 Wheat ..... 6.3 Barley ..... 6.3 Potatoes ..... 6.3 *Beans* ..... 6.3 Beets ..... 6.3 Beans ..... 6.3 Beans 6.3
Figured on Basis of 1929 Prices and Costs				
Income from sales.....	$7,786	$7,698	$6,691	$6,606
Current expenses	1,716	1,487	1,779	1,581
Balance	6,070	6,211	4,912	5,025
Deprec. and upkeep..	469	469	469	469
FARM INCOME	5,601	5,742	4,443	4,556
Int. on capital	979	979	979	979
LABOR INCOME	4,622	4,763	3,464	3,577
Figured on Basis of 1930 Prices and Costs				
Income from sales	$4,289	$3,938	$4,392	$4,039
Current expenses.....	1,723	1,490	1,759	1,563
Balance	2,566	2,448	2,633	2,476
Depre. and Upkeep..	469	469	469	469
FARM INCOME	2,097	1,979	2,164	2,007
Int. on capital	943	943	943	943
LABOR INCOME	1,154	1,036	1,221	1,064
Figured on Basis of 1931 Prices and Costs				
Income from sales.....	$2,887	$2,458	$2,813	$2,651
Current expenses.....	1,383	1,231	1,432	1,280
Balance	1,504	1,227	1,381	1,371
Depre. and Upkeep..	432	432	432	432
FARM INCOME	1,072	795	949	939
Int. on capital	803	803	803	803
LABOR INCOME	269	— 8	146	136

To compare the relative profitableness of potatoes, sugar beets and beans for a particular year, the method shown in this Table may be used. Crop Plan I is used as the basis for the calculations. In Crop Plan II, 6.3 acres of beans are substituted for 6.3 acres of sugar beets. The difference in LABOR INCOME between Crop Plan I and Crop Plan II gives the advantage of one crop over the other. In this budget beans gave a larger net return in 1929, but in 1930 and 1931 beets gave the larger return. In a like manner Crop Plan III substitutes sugar beets for potatoes as found in Crop Plan I and in this comparison beets gave the larger return in 1930 but potatoes gave the larger return in 1929 and 1931. In Crop Plan IV beans are substituted for potatoes found in Crop Plan I and here potatoes gave a larger return all years. In this way all cash crops may be compared as to probable net return for the year ahead. Average yields for recent years, normal feed requirements, and average costs and prices by years have been calculated in these budgets in the same manner as shown in Table IV.

It will be noted in Table VI that the alfalfa, sweet clover and grain acreage has been kept constant for all three Crop Plans. The soil maintenance program consists of three years of alfalfa out of every seven years on each of the seven fields in the hay rotation, and one year of sweet clover pasture out of every four years on each of the four fields in the pasture rotation. Practical variations in plans for any one year will ordinarily be limited to substituting the cultivated crops of potatoes, beans, and beets in such a way as to give the best chance for the largest labor income. Winter killing of alfalfa and a lack of stand of alfalfa or sweet clover may at times interfere with an exact program of soil maintenance, but various measures may be taken to come back to the original plan. In actual practice, it may be desirable, in order to reduce risk and to meet labor requirements, to grow some of all important cash crops during all years when prospects for prices are not disastrously low for any of them. Acreages of each will probably be varied yearly to have more of the crop with the best price outlook, but even on years when the price outlook for any one crop is exceptionally good, the risk involved both as to yield and price will probably be sufficiently great to make unwise a dependence on any one crop. Seldom will such large changes in price occur as has been the case during 1929, 1930, and 1931. These price changes were drastically downward on all crops and livestock but much more severe for some than for others. Costs lagged seriously behind prices in this downward swing.

It should be remembered that the illustrations given in this bulletin are based upon actual conditions on two types of soil found on a particular project in southern Idaho, and that the desirable rotations and crops will differ in other sections of the state. The important matter for each farmer on his particular farm is to select a soil maintenance rotation plan which fits his soil, water resources, climate, etc., and then to regulate his acreage of crops to fit the price outlook for each year. Any change in acreage must be feasible and practical from the standpoint of available water, machinery, labor, seed, cash resources, and the experience of the farmer.

Customary Method Compared to the Outlook Method. Most farmers have in the past increased the acreage of those crops which have given favorable returns for the past season or two. They have usually decreased the acreage following one or two seasons with low prices. That this practice has been unwise is shown in Fig. 4 and Table VII. This customary method of deciding the acreages to plant is here contrasted with two other methods both of which would have proved superior in returns. In order to make comparisons this table is constructed to show the *farm income* resulting from budgeting the same 80 acres in accordance with each of the three plans for selecting crops for each year from 1925 to 1931 inclusive.

Plan I is used as the basis of comparison for the other two. In this plan the acreage of potatoes and sugar beets has been held each year at 13.5 acres of each on the 27 acres of available cultivated crop land. All other crops and livestock have been held the same for each year. This plan calls for no use of outlook information but for consistency in carrying out the same program each year.

In Plan II the acreage of potatoes has been kept in proportion to the potato acreage actually planted in the state. This plan represents, therefore, the actual variation in potato acreage on the part of all Idaho potato growers during the years from 1925 to 1931 inclusive.[1] Thirteen and one-half acres has been held as a base to represent the average state

1 Due to the entrance of many new growers following years of good prices, the average variation in acreage per farm was somewhat less than the acreage variation for the state.

acreage for this period, and the acreage for each year has been varied accordingly.

Plan III results from following price outlook information. In this plan the potato acreage was increased 50 per cent from Plan I when the price outlook was unusually favorable, decreased 50 per cent when the outlook was unfavorable, and held equal to the acreage grown in Plan I on other years.

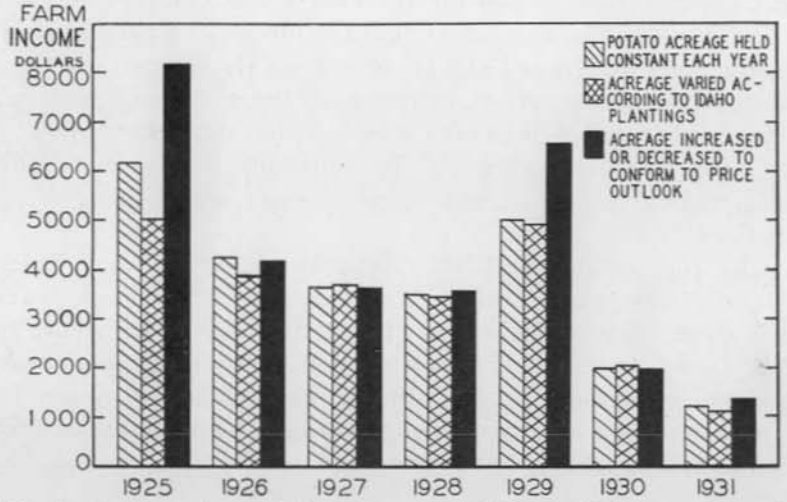

FIG. 4.—A comparison of farm incomes, which would have resulted if farmers had responded to potato outlook information, with farm incomes which could have been realized from two other plans of determining potato acreage.

In comparing these plans a review of the potato situation during the period covered is desirable. From 1925 to 1931, there were two years, 1925 and 1929, which had unusually favorable price prospects for potatoes. Growers in the 18 surplus late producing states and in the United States as a whole gave intentions to plant an unusually small acreage. Plan II, in following the changes in acreage in Idaho by years, shows that these two years were also years of low acreages in Idaho. (See Table VII.) On the other hand, in Plan III the acreage was increased instead of decreased during 1925 and 1929 on the basis of very favorable price outlooks. The additional *farm income* received by following the outlook information in Plan III was $3,211 for 1925 and $1,598 for 1929 over that

realized under Plan II. In fact Plan I where the acreage was not varied gave considerably better *farm income* in 1925 than was realized under Plan II; but in 1929 the difference was rather small. Plan III gave the largest *farm income* for all years except 1927 and 1930 when Plan II gave a slight advantage in return over both Plan I and Plan III. The total *farm income* for these seven years for Plan II was only $21,795 compared to $23,467 for Plan I and $27,018 for Plan III. This gives an average annual advantage of $239 and $747 respectively for Plans I and III over Plan II. We can conclude that without price outlook information the same acreage from year to year would have been a better plan than that followed by most Idaho growers, but by following available outlook information a still larger *farm income* could have been realized.

In the section entitled "Estimating Prices and Price Trends," the potato outlook statements for these past years are given. For all these years the outlook has been accurate. *The Idaho Agricultural Situation* will continue to carry special potato outlook reports during February, and again in April. Moreover, many outlook meetings will no doubt be held in the main potato areas of the state.

TABLE VII

A COMPARISON OF FARM INCOME WHICH WOULD HAVE RESULTED IF FARMERS HAD RESPONDED TO POTATO OUTLOOK INFORMATION, WITH FARM INCOMES WHICH COULD HAVE BEEN REALIZED FROM TWO OTHER PLANS OF DETERMINING POTATO ACREAGE, FOR YEARS 1925 TO 1931 INCLUSIVE.

Three plans, I, II, and III, for allotting acreages to potatoes and sugar beets are used for comparison on an 80 acre irrigated farm with silt loam soil on a project in southern Idaho.

YEAR	Weighted average potato price Wagon load cash to growers per cwt., U. S. No. 1's at Idaho Falls	PLAN I: Potato and sugar beet acreage held at 13.5 acres each for all years on 27 acres of cultivated crops.			PLAN II[1]: Potato acreage increased or decreased from Plan I in proportion to changes in Idaho potato acreage with the remainder of 27 acres planted to sugar beets.			PLAN III: Potato acreage increased by 50 per cent from Plan I with favorable Price Outlook; and decreased 50 per cent with unfavorable Outlook and held the same for other years. The remainder of 27 acres is planted to sugar beets.		
		Acreage		Farm Income	Acreage		Farm Income	Acreage		Farm Income
		Potatoes	Beets		Potatoes	Beets		Potatoes	Beets	
1925	$2.65	13.5	13.5	$ 6,185	9.3	17.7	$ 4,971	20.3	6.7	$ 8,182
1926	1.69	13.5	13.5	4,149	11.6	15.4	3,807	13.5	13.5	4,149
1927	.80	13.5	13.5	2,643	14.6	12.4	2,659	6.7	20.3	2,547
1928	.55	13.5	13.5	2,280	14.7	12.3	2,270	6.7	20.3	2,365
1929	2.02	13.5	13.5	5,057	13.0	14.0	4,964	20.3	6.7	6,562
1930	.69	13.5	13.5	1,958	14.9	12.1	1,964	6.7	20.3	1,943
1931	.50	13.5	13.5	1,195	16.5	10.5	1,160	6.7	20.3	1,270
Total				23,467			21,795			27,018
Average				3,352			3,113			3,860
Increase in Farm Income over Plan II				239			0			747

1 Acreage of potatoes in Idaho in thousands for past seven years: 1925—73; 1926—91; 1927—115; 1928—116; 1929—102; 1930—117; and 1931—130. Average—106,000 acres. According to revisions made after the 1930 census, the acreage has been proportionately reduced for all recent years. These revisions are 82,000, 98,000, and 110,000 acres respectively for the years 1929, 1930, and 1931.

The above figures representing *farm income* were derived from budgets calculated on the basis of estimates of average yields by reasonably efficient farmers from silt loam soil on this particular project in southern Idaho for recent years. The following yields per acre were obtained: Alfalfa hay, 4 tons; barley, 60 bushels; wheat, 50 bushels; potatoes, 175 sacks; and sugar beets, 12 tons. Butter fat production of 300 pounds per cow from 15 cows has been used in this estimate. These cows, with five heifers and five calves, are sufficient to consume all available hay and pasture. Each year surplus feed consisting of 358 bushels of wheat and 64 hundred-weight of barley have been sold. Income from sales was estimated from weighted average prices actually paid during these years in southern Idaho. Costs were based on average prices paid for seed, labor, machinery, etc., for each year, and include taxes, water maintenance, current expenses, average repairs, and average depreciation. All these costs were deducted from income from sales to arrive at *farm income*. Interest on debts or on the value of the investment have not been deducted.

The price outlook for other farm crops and livestock has not been so consistently accurate as for potatoes but for the important farm products of Idaho it has been accurate in foretelling the trend in prices for five to six years out of seven. Yet, in spite of this available information, the potato growers of the state have been in error more than half the time. They have planted more acres in the face of poor price prospects and have decreased acreage in the face of good price prospects. It seems appropriate, therefore, to emphasize that as the use of good seed results in greater profits, so does the following of a production plan based upon price outlook information, yield greater *farm income.*

Farm Accounts and the Budget

An adequate set of farm accounts will make budgeting more effective. Farm accounts are needed to supply the facts with respect to yields and costs which are of value in making budgets accurate. In addition, farm accounts give a measure of the accomplishments of the various enterprises and act as a check on the budget plans. They also point out mistakes and point toward improvements which can be made in future budgets.

Farm accounts should be simple and yet useful for purposes of comparison and study. *First,* a complete record should be kept of receipts and expenses for each enterprise and for overhead and miscellaneous expenses. Paying all bills by check will assist greatly in this matter. *Second,* an inventory should be taken at the beginning of each year when accounts are kept from year to year, for in this way a beginning and closing inventory is available. *Third,* a record of the acreages and locations of crops grown each year, fertilizer and cultural practices followed, and yields obtained are very useful in budgeting. *Fourth,* for the same reason records may be kept on livestock, giving total feeds consumed and total production obtained. Care should be used in recording quantities and prices of things sold, purchased, or hired.

Concluding Statement

In conclusion it can be said that no type of farming is always the most profitable. This fact alone demands intelligent plans for the future, based on the most reliable information available. The budget plan is the best way to emphasize the forward-looking point of view. It is the simplest and best method of arriving at the proper combination of crops and livestock which will result in greater returns. Conditions affecting farm returns are continually changing. The operator who *plans for the year ahead* usually will anticipate and profit by these changes.

Notes on Method of Computation

Computations Used in Budgeting Crop Acreages to Fit Certain Rotations of Crops and Kinds of Livestock

Under irrigated conditions in southern Idaho it is advisable to grow both hay and pasture in rotations. The hay grown is almost invariably alfalfa while pasture may be sweet clover, ladino clover, or grass mixtures grown in definite rotation. Under some circumstances a permanent pasture may be advisable.

The proper balance between hay and pasture is a matter of farm efficiency. This balance differs markedly between farms depending on the classes of livestock kept and also on feeding and production practices. If both hay and pasture are grown in definite rotations, the problem involves a method of calculating the proper division of acreage between these two rotations. Table III illustrates this division. The following paragraphs illustrate the methods used in making the division of acreage between the hay rotation and the pasture rotation found in Table III and Table IV.

I. The acreage of crop land available on an average 80-acre farm after allowing one acre of permanent pasture is about 69 acres.

II. Sixty-nine acres of land are to be divided between the hay rotations and the pasture rotation. These rotations are as follows:

HAY ROTATION	
Wheat (alfalfa)	1st year
Alfalfa	2nd "
Alfalfa	3rd "
Alfalfa	4th "
Potatoes	5th "
Sugar beets	6th "
Beans	7th "

PASTURE ROTATION	
Barley (sweet clover)	1st year
Sweet clover pasture	2nd "
Potatoes	3rd "
Beans	4th "

III. The annual feed requirements of the kind and number of livestock which it is proposed to keep for the year is next in order.

1. For each mature horse or mule:
   (a) 3.75 tons alfalfa hay besides waste hay from cows.
   (b) 500 pounds of oats (which will be purchased.)
2. For each mature cow or equivalent in young stock:
   (a) 3.2 tons of alfalfa hay.
   (b) .8 tons bean straw.
   (c) 750 pounds grain (barley unless sold to buy some oats or bran).
   (d) .33 acres of sweet clover pasture.

IV. Acres of hay rotation required to feed four horses which are needed on 80 acres:

3.75 (tons) $\times$ 4 (horses) = 15 tons alfalfa hay required per year.

15 (tons) $\div$ 4 (tons) = 3.75 acres of alfalfa required to produce 15 tons alfalfa hay.

Alfalfa hay occupies $\frac{3}{7}$ of the hay rotation.

Therefore, 3.75 acres = $\frac{3}{7}$ of the hay rotation.

1.25 acres = $\frac{1}{7}$ of the hay rotation.

$\frac{7}{7} = 7 \times 1.25$ acres, which equals 8.75 acres, the acres of hay rotation required to raise hay for 4 horses.

69 acres of crop land minus 8.75 acres = 60.25 acres remaining for hay rotation and pasture rotation, which acreage may be divided to raise hay and pasture for dairy cattle.

V. The 60.25 acres of crop land remaining should be divided between the hay and pasture rotations in such a manner as to produce hay enough in the hay rotation for all the dairy

cattle which can be pastured in the pasture rotation, but no more.

1. First, what is the acreage requirement per cow for hay and pasture?

   3.2 (tons) ÷ 4 (tons) = .8 acres of alfalfa hay per cow.

   1.0 (acre) ÷ 3 (cows) = .33 acres of sweet clover pasture per cow.

2. With .8 acres of alfalfa hay and .33 acres of sweet clover pasture required per cow, how many acres of the hay rotation and pasture rotation are required per cow?

   .33 (acres) × $\frac{4}{1}$ = 1.32 acres of pasture rotation required per cow.

   .8 (acres) × $\frac{7}{3}$ = 1.86 acres of hay rotation required per cow.

   1.32 acres plus 1.86 acres = 3.18 (the denominator of fraction which can be used to figure division of land between rotations).

3. What part of 60.25 acres of crop land will be in hay rotation and in pasture rotation?

$\frac{1.32}{3.18} \times \frac{60.25 \text{ (acres)}}{1}$ = 25.0 acres pasture rotation for dairy herd.

$\frac{1.86}{3.18} \times \frac{60.25 \text{ (acres)}}{1}$ = 35.2 acres hay rotation for dairy herd.

4. What is the total acreage in hay rotation and pasture rotation for both horses and dairy herd?

   35.2 (acres) plus 8.75 (acres) = 43.95 acres of hay rotation.

   25.0 (acres) plus 00 (acres) = 25.0 acres of pasture rotation.

VI. With the acreage of the hay and pasture rotation calculated, the size of the fields in each rotation may be determined.

43.95 (acres) ÷ 7 (fields) = 6.3 acres per field in hay rotation.

25.0 (acres) ÷ 4 (fields) = 6.3 acres per field in pasture rotation.[1]

[1] The acreage per field of the two rotations usually differs in size. Mere chance made them equal in this budget.

VII. The following acres of crops are therefore harvested each year:

HAY ROTATION	Acres
Wheat (alfalfa)	6.3
Alfalfa (1st year crop)	6.3
Alfalfa (2nd year crop)	6.3
Alfalfa (3rd year crop)	6.3
Potatoes	6.3
Sugar beets	6.3
Beans	6.3

PASTURE ROTATION	Acres
Barley (sweet clover)	6.3
Sweet clover pasture	6.3
Potatoes	6.3
Beans	6.3

These acreages can now be entered on the budget form.

VIII. With the proper balance of hay rotation and pasture rotation calculated it is possible to determine the size of the dairy herd.

6.3 (acres) $\times$ 3 (cows) = 18.9 cows can be pastured on sweet clover pasture.

18.9 (cows) $\times$ 3.2 (tons) = 60.5 tons alfalfa hay required for the dairy herd which can be pastured.

4 (horses) $\times$ 3.75 (tons) = 15 tons alfalfa hay required for the horses.

60.5 (tons) plus 15 (tons) = 75.5 tons, the total tons of hay required.

18.9 (acres) $\times$ 4 (tons) = 75.6 tons hay raised in hay rotation which is sufficient for dairy herd of 18.9 cows or cow equivalents and 4 horses.

IX. If it is the plan to raise replacements for the dairy herd, about one-third as many yearling heifers and about one-third as many calves should be kept as there are cows. If one yearling heifer is estimated to consume one-half as much as a cow, and one calf estimated to consume as much as one-sixth cow, the herd will consist of slightly more than three-fourths as cow units and about one-fourth as heifers and calves. [$\frac{3}{4} \times 18.9$ (cow units) = 14.1 cows.] This will permit from 14 to 15 dairy cows besides 5 heifers and 5 calves. This dairy herd now can be listed on the budget form if it is planned to keep as many dairy cattle as the farm will feed without purchase of either hay or pasture. Since there is a surplus of both grain and bean straw it has not been necessary to consider them in the calculations.