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AGRICULTURAL EXTENSION DIVISION  
UNIVERSITY OF MINNESOTA

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MINNESOTA FARM BUSINESS NOTES

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Prepared by the Division of Agricultural Economics  
University Farm, St. Paul, Minnesota

WHAT ARE FARMS WORTH?

Prepared by G. A. Pond and W. L. Cavert

Prior to 1920, farm operations were based on the assumption of a continued rise in land values. From 1900 to 1910, the average acre value of Minnesota farms, including buildings, rose from \$25.57 to \$45.60, an approximate rate of 6 per cent compounded annually. From 1910 to 1920, the average rose from \$45.60 to \$109.23, or at the approximate rate of 9 per cent compounded annually. These two decades were marked by rising prices for farm products. As long as prices showed a rising tendency, expectations of rising land values were natural. Since 1920, the old time faith in a continually rising price level for farm products has been rudely shattered.

The amendment to the Farm Loan Act passed on May 12, 1933, established the basis of 50 per cent of the "normal" value of the land and 20 per cent of the value of the permanent, insured improvements, as limits for federal farm loans. The Farm Credit Administration has interpreted "normal" value for appraisal purposes as the "productive" value of farm lands on the basis of August 1909 to July 1914 prices for farm products. It may be noted that an appraisal on this basis may be lower than the actual sale value in 1909-14. Confidence in advancing land values at that time was so great that land was bid up to a point where it yielded low current returns. Furthermore, the effect of higher taxes and cost of supplies at present must not be overlooked. Farm real estate taxes were 124 per cent above the 1913 level in 1932 and on January 24, 1934, the cost of supplies bought by farmers for use in production was 14.5 per cent above the 1910-14 level. The increase in cash outlays, of course, may have been offset to some extent by shifts in systems of farming, increased output and improved efficiency.

What Value Does This Method Give?

It is of interest to see the results obtained by applying this method of valuation to representative farms. Complete figures for the years 1928-32 inclusive are available in connection with the southeast Minnesota farm management service for 33 farms in Dodge, Freeborn, Goodhue, Rice, Steele and Waseca Counties. These figures include a detailed report of the quantities of various crops produced and a complete record of sales and expenses. If one can allocate a certain portion of the income to cover the charges for labor, machinery, taxes, building upkeep and other operating expenses, the remainder is the net income which may be capitalized in land values. Rental custom provides a rough method of allocating the income between real estate and other expenses in those sections where a significant number of farms are rented on a share basis under which the landlord furnishes only the real estate and pays only the expenses that may be directly chargeable to real estate such as taxes, insurance on buildings and grass seed. For example, in a section where the tenant commonly furnishes all of his own equipment and gives the

landlord one-third of the crop, it may be assumed that this contract is the result of a concensus of community opinion that one-third of the crop income may be properly allocated as return for the real estate. In practice it is customary in southern Minnesota under such leases for the tenant to pay cash rent for the pasture and frequently also for the hay.

In order to arrive at a figure that would indicate the capital value which these southeast Minnesota farms would support on the basis of 1909-14 values, each farm was arbitrarily assigned a rental basis of one-third or two-fifths of the corn and small grain crops according to the practice prevalent in the immediate locality. Such crops as silage corn, fodder corn, canning peas, sweet corn for canning and sugar beets were estimated to have the same rental value as the field corn on the same farm, except that in the case of silage and fodder corn, it was assumed the yield per acre would have been 80 per cent of that for the field corn. For example, if on a certain farm, the field corn returned 40 bushels per acre, the rental value of silage and fodder corn was estimated on the basis of 32 bushels to be divided between landlord and tenant. In the case of tame hay such as alfalfa and clover, the rental value was estimated at one-half the crop. Wild hay on low lying areas in the same way was figured on the basis of one-third to the landlord, and two-thirds to the tenant.

The following are average Minnesota values for the five pre-war years for the various crops, based on United States Department of Agriculture reports: corn, per bu., \$.52; wheat, \$.92; rye, \$.64; barley, \$.50; oats, \$.36; and flax, \$1.66. Prices were not available for the various kinds of hay for the 1909-14 period. Arbitrary values were assigned as follows: alfalfa, \$10; tame hay, except alfalfa, \$8; and wild hay, \$6 per ton. The value of pasture was arbitrarily estimated at \$.70 a month per cow or equivalent amount of livestock

Based on these assumptions, the following figures show the capitalized value of the farms on the basis of the sum upon which interest could be earned at a five per cent rate:

Range in capitalized value	No. farms	Avg. Acres per Farm		Share Rental Basis		Avg. crop index	Average Income and Expenses Assigned to Landlord			Average Capitalized Value	
		Total	Crop acres	No. in 2/5 territory	No. in 1/3 territory		Gross income	Expenses	Net income	Per farm	Per acre
\$ 28.43-39.99	9	181.3	116.9	0	9	96.8	\$ 815.11	\$ 498.00	\$ 317.11	6342	35.04
40.00-59.99	6	207.1	148.1	0	6	100.3	1063.52	585.67	477.85	9557	46.15
60.00-79.99	9	178.6	125.6	4	5	110.7	1116.14	522.02	594.12	11881	66.52
80.00-95.86	8	201.8	152.6	7	1	121.1	1594.41	699.18	895.23	17904	88.72
Total or average	32	190.3	134.1	11	21	107.4	1147.41	574.61	572.80	11454	60.18

The crop index figure refers to the crop yield per acre on the particular farm as compared with the average of all farms cooperating in the southeast Minnesota farm management service project taken as 100. The five-year average yields were as follows: corn, 44.0 bu.; oats, 47.3 bu.; barley, 34.5 bu.; and alfalfa, 2.7 tons.

How It Works for a Particular Farm

The following figures illustrate the application of the method to a particular farm.

Crop	Acres	Yield per acre	Total production bu, or tons	Price	Value	Value of landlord's share
Corn	56.6	50.0	2831	\$.52	\$1472.12	\$490.71
Oats	35.2	56.6	1989	.36	716.04	238.68
Barley	19.8	52.8	1046	.50	523.00	174.33
Flax	.8	5.0	4	1.66	6.64	2.21
Tame hay	8.2	1.76	14.4	8.00	115.20	57.60
Alfalfa	9.4	3.32	31.2	10.00	312.00	156.00
Wild hay	26.3	1.48	38.6	6.00	231.60	77.20
Pasture	27.2					114.56
Roads & buildings	15.0					
Total	198.5					\$1311.29

The expenses chargeable to the landlord were as follows: taxes, \$211.05; insurance, \$10.31; depreciation and repairs on buildings and fences, \$221.12; and grass seed, \$65.78; total, \$508.26.

The receipts of \$1311.29 less expenses of \$508.26, leaves a net income of \$803.03. This capitalized at five per cent ( $\$803.03 \div .05 = \$16061$ ) gives a value of \$16061, or \$80.91 per acre. If one wished to assume that the expense for repairs, depreciation and insurance on house, buildings and fences amounting to \$231.43 was properly chargeable to the livestock that used the barns and fences and to the personal expenses of the farm family living in the house, then one would raise the capitalized value \$23.32 per acre, or to a total of \$104.23 per acre. However, ordinarily farms are rented as a farm unit, the house, barns and fences being furnished without extra charge. But in many cases tenants have to put up with buildings that are in poor repair and less ample than on this farm. The buildings and fences on this farm are inventoried at \$6873.

One of the striking features of the data is the fact that the capitalized values of the 32 farms vary from \$28.43 to \$95.86 per acre even tho no distinctly inferior farms are included. Some of the factors that apparently contribute to this wide variation in value are the following: Variations in crop yields, variations in taxes due to varying levies for school district, township and county expenses, variations in the per cent of the acres devoted to the more profitable crops, such as corn and alfalfa, and variations in the building charges.

The figures from these farms indicate roughly the values that might be expected to prevail with prices of farm products at the 1909-14 level, with an interest rate of five per cent and with taxes and building repairs at the level that they have been during the years 1928-32. However, forecasts as to the actual prices that may prevail are exceedingly difficult to make at the present time. Unfavorable factors are the slowing up of population growth and restriction on world trade. However, it is likely that the dominant long time factor in the price of good farm lands will be the general price level for all commodities. If the predepression general price level is regained, then values well above those indicated by these calculations could be expected to prevail in the long run.

MINNESOTA FARM PRICES FOR FEBRUARY 1934

Prepared by Adena E. Terras

The index number of Minnesota farm prices for the month of February 1934 was 54.3. When the average of farm prices of the three Februarys 1924-25-26 is represented by 100, the indexes for February of each year from 1924 to date are as follows:

February 1924 -	88.2	February 1930 -	101.8
" 1925 -	99.5	" 1931 -	69.3
" 1926 -	115.2	" 1932 -	45.9
" 1927 -	113.4	" 1933 -	34.8*
" 1928 -	100.7	" 1934 -	54.3*
" 1929 -	106.5		

\*Preliminary

The price index of 54.3 for the past month is the net result of increases and decreases in the prices of farm products in February 1934 over the average of February 1924-25-26 weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index,  
February 15, 1934, with Comparisons\*

	Feb. 15, 1934	Jan. 15, 1934	Feb. 15, 1933	Av. Feb. 1924-25- 26	% Feb. 15, 1934 is of Jan. 15, 1934	% Feb. 15, 1934 is cf. Feb. 15, 1933	% Feb. 15, 1934 is of Feb. 15, 1924-25-26
Wheat	\$ .75	\$ .73	\$ .34	\$ 1.41	103	221	53
Corn	.36	.37	.13	.64	97	277	56
Oats	.29	.28	.10	.39	104	290	74
Barley	.50	.50	.16	.61	100	313	82
Rye	.50	.49	.20	.82	102	250	61
Flax	1.68	1.65	.92	2.57	102	183	65
Potatoes	.65	.55	.23	.80	118	283	81
Hogs	3.70	2.75	2.80	8.88	135	132	42
Cattle	3.65	3.35	3.35	5.54	109	109	66
Calves	5.00	4.40	4.80	8.50	114	104	59
Lambs-sheep	7.18	6.02	4.34	11.63	119	165	62
Chickens	.075	.069	.075	.167	109	100	45
Eggs	.14	.14	.10	.30	100	140	47
Butterfat	.23	.18	.17	.45	128	135	51
Hay	7.60	7.22	5.84	11.41	105	130	67
Milk	1.27	1.22	1.02	2.19	104	125	58

\*Except for milk, these are the average prices for Minnesota as reported by the United States Department of Agriculture.

Indexes and Ratios of Minnesota Agriculture\*

	Feb. 1934	Jan. 1934	Feb. 1933	Av. Feb. 1924-26
U.S. farm price index	54.3	50.0	35.0	100.0
Minnesota farm price index	54.3	46.0	34.8	100.0
U.S. purchasing power of farm products	71.8	67.6	54.1	100.0
Minnesota purchasing power of farm products	71.8	62.2	53.8	100.0
U.S. hog-corn ratio	8.5	7.0	15.2	11.4
Minnesota hog-corn ratio	10.3	7.4	17.5	13.7
Minnesota egg-grain ratio	14.8	15.0	25.9	18.3
Minnesota butterfat-farm grain ratio	26.3	20.9	54.8	36.4

\*Explanations of the computation of these data are given in Farm Business Notes No. 126.