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MINNESOTA FARM MANAGEMENT SERVICE NOTES

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Prepared by the Farm Management Group at University Farm, St. Paul, Minn.

HAVE FARM PRACTICES REDUCED PRODUCTION?

Are farmers "miners"? Has fertility been wasted? Has the soil been depleted? If so, does it imperil future production? Are crop yields becoming smaller as is so often charged?

These are serious questions. If true, they stand as an indictment of our farming practices. If prevailing farm practices are faulty they should be corrected. If the charges are not true, they should be refuted as unjust to the people who till the soil. There has been much argument on these questions. There are many who firmly believe that the productive power of the soil has been permanently depleted and that crop yields are steadily becoming less. It is conceded that in some areas yields have been going down and fertility has been reduced. In other areas, however, yields have advanced steadily and the productive power of the land has increased.

The best available test of the question lies in the records of past production. These records have been gathered by the Census Bureau and by the United States Department of Agriculture. The department records for the crops, year by year, have been adjusted to the records of the Census Bureau which are taken only once in ten years. The Census records of yields and the records of the United States Department of Agriculture begin with 1866. They extend from that time to the present, tho the figures offered extend only to the census of 1919. In a publication of this type it is impossible to present more than the summaries of the production yields by ten year periods.

What the Records Show for the United States as a Whole:

Average Yields of Principal Crops by Ten-Year Periods 1866-1919

		* 1866-69	1870-79	1880-89	1890-99	1900-09	1910-19
Wheat	bu. per acre	11.8	12.4	12.0	13.1	14.1	14.6
Corn	" " "	24.6	27.1	24.1	24.6	26.3	26.1
Oats	" " "	28.7	27.3	26.6	26.9	29.4	32.1
Barley	" " "	24.5	22.2	22.0	23.8	26.0	25.1
Rye	" " "	13.6	14.0	12.0	14.2	16.0	15.5
Potatoes	" " "	96.4	87.9	76.5	77.5	92.0	95.2
Hay	tons " "	1.29	1.23	1.20	1.27	1.47	1.45
Cotton	lbs. " "	177.0	175.7	169.5	184.8	184.9	176.8

*Results for only four years available

The Yield Index by Ten-Year Periods
(Yields 1870-1879 equal 100)

	* 1866-69	1870-79	1880-89	1890-99	1900-09	1910-19
Wheat	95.16	100.00	96.77	105.65	113.71	117.74
Corn	90.77	100.00	83.93	90.77	97.05	96.31
Oats	105.13	100.00	97.44	98.53	107.69	117.58
Barley	110.36	100.00	99.10	107.21	117.12	113.06
Rye	97.14	100.00	85.71	101.43	114.29	110.71
Potatoes	109.57	100.00	87.03	88.17	104.66	108.30
Hay	104.88	100.00	97.56	103.25	119.51	117.89
Cotton	100.74	100.00	96.47	105.1	105.24	100.63

*Results for only four years available

It will be noted that for the United States the trend in yields in most crops has been upward. Wheat, which for a time was the most commonly grown crop, has increased only slightly but the trend in yield is nevertheless upward. The yields of corn are higher in the ten year period 1870-79 than at any other time. The yield in 1910-19 is considerably higher, however, than it was in the period 1866-69. For the ten year periods since 1880 the trend has been steadily upward with the exception of the last period when there is a slight decline which may or may not be of significance. The yields of the oat crop have fluctuated considerably but close with a decided upward trend. Barley and rye yields likewise show an upward trend quite markedly in the last ten-year periods. The potato crop like the corn crop, shows no material advance in yields over the first crops reported. It can not be said, however, that the yield trends are downward. The yields of hay are upward while the yields of cotton are practically on a level with those first recorded.

What the Records Show for Minnesota:

Average Yields of the Principal Crops by Ten-Year Periods 1866-1919

		* 1867-69	1870-79	1880-89	1890-99	1900-09	1909-19
Wheat	bu. per acre	14.4	14.3	12.6	14.4	13.1	14.1
Corn	" " "	30.8	32.5	29.9	28.1	29.3	34.2
Oats	" " "	37.2	34.0	33.4	31.0	31.6	33.4
Barley	" " "	24.8	26.1	24.2	26.2	25.5	24.3
Rye	" " "	19.4	18.6	14.8	17.4	18.8	18.4
Potatoes	" " "	124.3	97.7	94.3	87.2	88.4	100.5
Hay	tons " "	1.25	1.43	1.31	1.44	1.65	1.55

*Yields for only three years available

The Yield Index by Ten-Year Periods
(yields 1870-79 equal 100)

	*1866-69	1870-79	1880-89	1890-99	1900-09	1909-19
Wheat	100.70	100.00	88.11	100.70	91.61	98.60
Corn	94.77	100.00	92.00	86.46	90.15	105.24
Oats	109.41	100.00	98.24	91.18	92.94	98.24
Barley	95.02	100.00	92.72	100.38	97.70	93.10
Rye	104.30	100.00	79.57	93.55	101.08	98.92
Potatoes	127.23	100.00	96.52	89.25	90.48	102.37
Hay	87.41	100.00	91.61	100.70	115.38	108.39

*Results for only four years available

It appears that on the average Minnesota farmers have not been maintaining the productive power of the soil as well as farmers of the United States as a whole. The trends of some of the crops are downward or only very slightly upward. There are exceptions to this rule, however. Wheat yields show no change. Corn yields on the other hand have improved consistently in spite of the fact that the crop has been introduced where it is not entirely adapted. Oats and barley yields trend downward tho only slightly, while rye has been slightly upward. Potato yields likewise have trended downward. It is probable that this is accounted for in part at least by the large extension of acreage in later years, altho a noticeable trend upward has occurred in the last ten-year period. The yields of hay have been consistently upward all thru the period. This is probably due to the substitution of tame hay for wild hay which yields but lightly on the prairie lands.

A careful study of the records indicates a tendency on the part of the early settlers to exploit the soil. That yields have been permanently reduced can not be conclusively shown. Rather, it may be pointed out that yields on virgin soils were only moderate, that a period of lower yields followed while new settlers were adapting themselves to the environment and developing their farms. The records indicate that the producing power of the land is now being restored both in the United States as a whole and in Minnesota. This improvement in yields is undoubtedly due to the introduction of larger acreages of legumes, to the application of more manures, to better tillage of the soil and to the use of improved varieties. That yields can still further be improved is obvious. The producing power of the soil is not permanently destroyed. It requires only correct cropping, good farm practices and the use of improved varieties of field crops to increase yields beyond anything experienced even in the early days of virgin prairie and timber lands.

Andrew Boss

L.F. Garey