AGRICULTURAL EXTENSION DIVISION
UNIVERSITY OF MINNESOTA

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THE HORSE SITUATION

Horses are the Leading Source of Power:

Reports from 538 Minnesota farmers (1) indicate that on the basis of horse-power hours, the horses furnished about 4500 (2) horse-power hours compared to 1500 for drawbar work done by the tractor. For the state as a whole, horses would do a larger proportion of the total field work for 45 percent of the farms included in the study had tractors compared to 17 percent for the whole state in 1927.

Estimates of Horses Needed in 1934:

Two hundred and thirty farmers not using tractors, estimated that in 1934 they would require 99 percent of the present number of horses while 217 farmers using tractors estimated that in 1934 they would require 84 percent of the present number of horses. Because 45 percent of these farmers use tractors as compared to 17 percent for the state, it seems probable that if reports from all the farmers in the state were available they would indicate that about 95 percent of the present number of horses will be required in 1934.

The Supply of Horses:

Horses differ from mechanical motors in that it takes at least four years from the time that the mare is bred to produce a working horse, while mechanical motors may be had in large quantities, a few weeks after the orders are given.

The colts raised from 1918 to 1930 will constitute the bulk of the horses of working age in 1934. Census data show that for the United States in 1918 and 1919 one horse colt was raised per year for each 13.6 horses. This number of colts probably would slightly more than maintain the horse population. In 1923 and 1924 only one horse colt was raised for each 30.3 horses. Mule colts were slightly more numerous in proportion to the mature stock than horses. In Minnesota in 1918 and 1919 one colt was raised per year for each 15.5 horses. In 1923-24 the corresponding figure was 34.4. If horses live to an average age of 16 years, the number of colts raised in the United States in 1923 and 1924 would maintain a horse population of slightly over 8,700,000. If mules live to an average of 16 years, the mule colts raised in 1923 and 1924 would maintain a mule population of slightly under 3,400,000 or a total horse and mule population of 12,100,000. The total number of horses and mules on farms reported in January, 1929, by the United States Department of Agriculture was 19,400,000. Based on the colts raised in 1923 and 1924, it would be possible to maintain about 62 percent of the present number of horses and mules.

On 502 Minnesota farms in 1926, 1927 and 1928, one colt was raised per year for each 27 horses, three years of age and over. These farms were about equally

(1) In March 1929, a questionnaire on kinds of farm power used was sent to lists of Minnesota farmers furnished by F. W. Peck, Director of the Minnesota Agricultural Extension Service and J. S. Jones, Secretary of the Minnesota Farm Bureau. The data based on reports from Minnesota farms is a part of the material tabulated from this questionnaire.

(2) This calculation assumes a horse when working to furnish one horse power per hour and tractors to work at rated capacity.

divided between farms having tractors and not having tractors. There was no difference in the horses per colt raised on farms having tractors as compared to farms not having tractors.

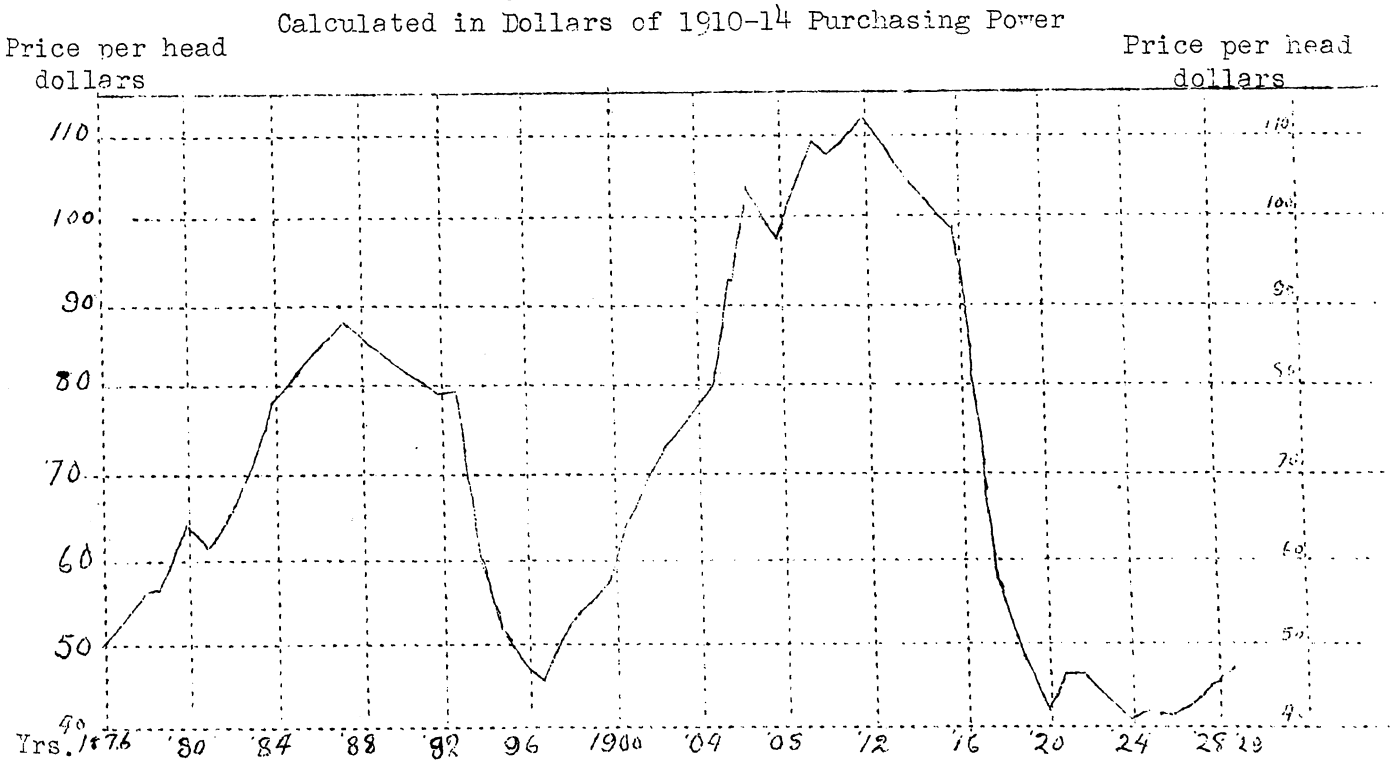
Based on returns of township assessors to the Minnesota State Tax Commission (3) in 1917 there were 14 horses three years and over for each mature colt. In 1922, there were 52 per colt and in 1927 there were 35 per colt.

Census data, Minnesota Tax Commission Data and 1929 reports from 502 farmers all agree that a further significant reduction in the number of horses is inevitable. However, it is likely that the shortage will be less acute than the foregoing reports would indicate as the tractors now being sold are much more adaptable for cultivating, mowing, cutting grain and similar operations than the models that most of the farmers who reported are using. Probably there will be a decided rise in the price of horses which combined with the improvements in tractors will cause more use to be made of tractors and less of horses than these farmers now anticipate.

The Purchasing Power of Horses:

On a purchasing power basis (that is figuring the amount of other goods that can be purchased with one horse) horses in 1912 were worth $112 of 1910-14 value. In 1926 they were worth only $40 pre-war dollars. In 1929, they were worth $46 pre-war dollars. The rise has really been more than is indicated in these figures as for the past two years horses have been fairly saleable at quoted prices, while at the bottom of the cycle horses were practically unsaleable. The most uncertain factor affecting future horse prices is the effect of the new type of tractors on the number of horses needed. The general introduction of tractors that are better adapted for cultivating and other operations usually done with horses may delay a pronounced rise in horse values but even with a large use of such tractors, it seems almost certain that horses will sell at a relatively high figure in four or five years. The trend of purchasing power since 1876 is shown in the following diagram.

A HALF CENTURY OF HORSE PRICES
Calculated in Dollars of 1910-14 Purchasing Power



(3) Kirk, P. H., and Bodin, Roy A., Minnesota Annual Crop and Livestock Statistics 1926-27, page 73.

The Displacement of Horses by Tractors:

Data from 195 Minnesota farms owning tractors indicate that the total horses displaced by tractors on farms of 50 to 99 crop acres is 0.9, while on farms of 100 to 199 crop acres 2.7 horses were displaced, and on farms of 200 crop acres and over 4.7 horses were displaced. For all the 195 farms the average number of horses estimated to be required without a tractor were 7.9, the number on hand was 5.9 and the number that the operator expected to use in 1934 was 4.8 making a total present and prospective displacement of 3.1 or 39 percent of the number required without a tractor, table 2.

Table 2. RELATION OF SIZE OF FARM TO THE DISPLACEMENT OF HORSES BY TRACTORS, 195 MINNESOTA FARMS HAVING TRACTORS THAT ARE USED FOR DRAWBAR WORK

Crop acres	Number of farms	Crop acres per farm	Number of horses per farm			Decrease in horses per farm		
			Number required without tractors	Number on hand March 1929	Number expected to have on hand 1934	Up to March 1929	Expected further decrease March 1929 to 1934	Total displacement
49 and less	5*	35	2.8	2.4	2.2	0.4	0.2	0.6
50-99	23	74	4.3	4.1	3.4	0.2	0.7	0.9
100-199	106	153	7.3	5.4	4.6	1.9	0.8	2.7
200 and over	61	319	10.6	7.9	5.9	2.7	2.0	4.7
Total or average	195	192	7.9	5.9	4.8	2.0	1.1	3.1

*Not a sufficient number of farms to be significant.

Effect of Decreased Horse Numbers on Agriculture:

The decreased number of horses and mules to be fed and decreased feed per animal for those that remain have been important factors in prolonging the agricultural depression.

Baker (4) estimated that between 1918 and 1928 the crop land released for other purposes by the decline in horse and mule numbers amounted to 15,000,000 acres.

King (5) concluded that between 1920 and 1928 the decline in horse and mule population released nearly 21,000,000 acres of crop land.

In 1926 Warren and Pearson (6) estimated that 18,000,000 of the 365,000,000 acres in crops at the close of the war period had been released for other purposes by the decreased number of horses and mules in 1926 as compared to 1918. The estimates of Warren and Pearson and King agree quite closely.

(4) Changes in Production and Consumption of Farm Products, Annals of American Academy of Political and Social Science, March 1929, p. 101.

(5) King, W. I., The Gasoline Engine and The Farmer's Income, Journal of Farm Economics, Vol. XI, No. 1, pp. 64-73.

(6) Warren, G. F. and Pearson, F. A., "Effect of the Gasoline Engine," Farm Economics, 31. New York State College of Agriculture, pp. 385-6.

If one applies the Warren and Pearson method of calculation to the horses and mules on hand on January 1, 1929, the total displacement would be 22,000,000 acres or six percent of 365,000,000 acres.

Effect of Decreased Feed Per Horse On Agriculture:

In New York State on Farms keeping cost records the grain fed per horse per year decreased from 3134 pounds in 1914-18 inclusive to 2435 lbs. for the years 1922-26 inclusive. These records included 158 farm years. This is a decrease of 649 pounds per horse or 21 percent. If one assumed that the decrease of 21 percent of grain fed applied to all the horses and mules on farms in the United States, then using the same base data as Warren and Pearson, the additional acres displaced from 1918 to 1929 have been over 6,000,000 or a total displacement due to decrease in numbers of horses and mules and to decreased grain for those that remain of 28,000,000 acres or nearly eight percent of 365,000,000 acres.

In the case of these New York State records, the amount of hay fed per horse decreased from 7203 pounds to 6329 pounds or 874 pounds (7). This is a decrease of 12 percent. However, it is probable that part of this decrease in hay requirements has been offset by an increased use of pasture.

Cost records kept in Minnesota since 1906 indicate that in southern Minnesota there has been a decided reduction in the feed requirements of horses. Data for 618 horse-years in Rice and Lyon counties for the years 1905-1912 inclusive give an average of 5052 pounds of grain, 7146 pounds of hay and 23 days of pasture as the average yearly consumption per horse, while similar data for 1393 horse-years in Steele and Cottonwood-Jackson counties for the years 1920-24 inclusive give an average consumption per horse of 3069 pounds of grain, 4598 pounds of hay and 66 days of pasture. This is a decrease of 39 percent in grain, of 36 percent in hay and an increase of 287 percent in pasture. Records on 125 farms in Rice, Steele, Waseca, Dodge and Freeborn counties for 1928 show a feed consumption of only 2248 pounds of grain and 4199 pounds of hay. Thus southern Minnesota figures for 1928 show a grain consumption of only 44 percent of that for 1905-12. However, the 1928 feed consumption may have been less than normal due to some shortage in feed supplies.

Horses in the past , have been fed heavier in southern Minnesota than in most other sections of the United States so that the New York figures would be more nearly representative of the United States. Farms cooperating with Agricultural Colleges in the keeping of accounting records may have reduced their horse feed more than the average as they are more highly motorized, but such figures give some indication of the decided effect that the introduction of gasoline power for road travel and for some of the heavier farm work has made in the feed requirements of farm horses.

In table 3 is found a summary of all the records on farm work horses kept on Minnesota farms by this Division since 1905.

(7) Harriot, J. F., Published and Unpublished Cost Data of the New York State College of Agriculture.

*Table 3. WORK HORSES - HOURS WORKED AND FEED CONSUMED 1905-28

COUNTY	SECTION OF STATE	PERIOD COVERED	NUMBER HORSE YEARS	HOURS WORKED PER HORSE	FEED PER HORSE		
					Grain Lbs.	Hay Lbs.	Pasture Days
Norman	Northwest	1906-17	743	955	3414	6260	17
Rice	Southeast	1905-12	315	976	4742	6402	29
Lyon	Southwest	1905-10	303	1066	5375	7920	17
Wright	E.Central	1913-17	272	971	3504	8393	20
Steele	Southeast	1920-24	734	835	3020	4830	56
Cottonwood & Jackson	Southwest	1920-24	659	778	3124	4340	77
Pine	Northeast	1925-27	251	772	1196	4735	127
Polk	Northwest	1926-28	429	996	3246	6361	44
Rice, Steele, Dodge, Freeborn & Waseca	Southeast	1928	730	**	2248	4199	**

* Published and unpublished data furnished by Pond, G.A., Division of Farm Management and Agricultural Economics.

** No data.

Wm. L. Cavert

PRICE INDEX NUMBER FOR OCTOBER 1929

The index number of Minnesota farm prices for the month of October 1929 was 109.4 as compared with 100, which represents the average of the prices prevailing in the three months of October 1924-25-26. The corresponding index for October 1928 was 94.1 and for October 1927 was 97.9.

The price index of 109.4 for the past month is the net result of increases and decreases in the prices of farm products in October 1929 over the average of October 1924-25-26 as shown in the following list:

Principal Farm Products which Showed Price Increases and Decreases in October 1929 when Compared with Average Prices in October 1924-25-26

Increase in October 1929		Decrease in October 1929	
Corn	Calves	Wheat	Lamb-Sheep
Oats	Chickens	Barley	Eggs
Flax	Butterfat	Rye	Hay
Potatoes	Milk	Hogs	
Cattle			

The October 1929 prices of these products have also been compared with the prices of October 1928 for increases and decreases. The products are shown according to this comparison in the following table:

Principal Farm Products which Showed Price Increases and Decreases in October 1929 when Compared with September 1929

Increase in October 1929		Decrease in October 1929		No Change
Rye	Butterfat	Wheat	Calves	Oats
Flax	Eggs	Corn	Lamb-sheep	Potatoes
		Barley	Chickens	
		Hogs	Hay	
		Cattle	Milk	

D. D. Kittredge