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Survey of Farmer Transportation Facilities, Needs and Uses

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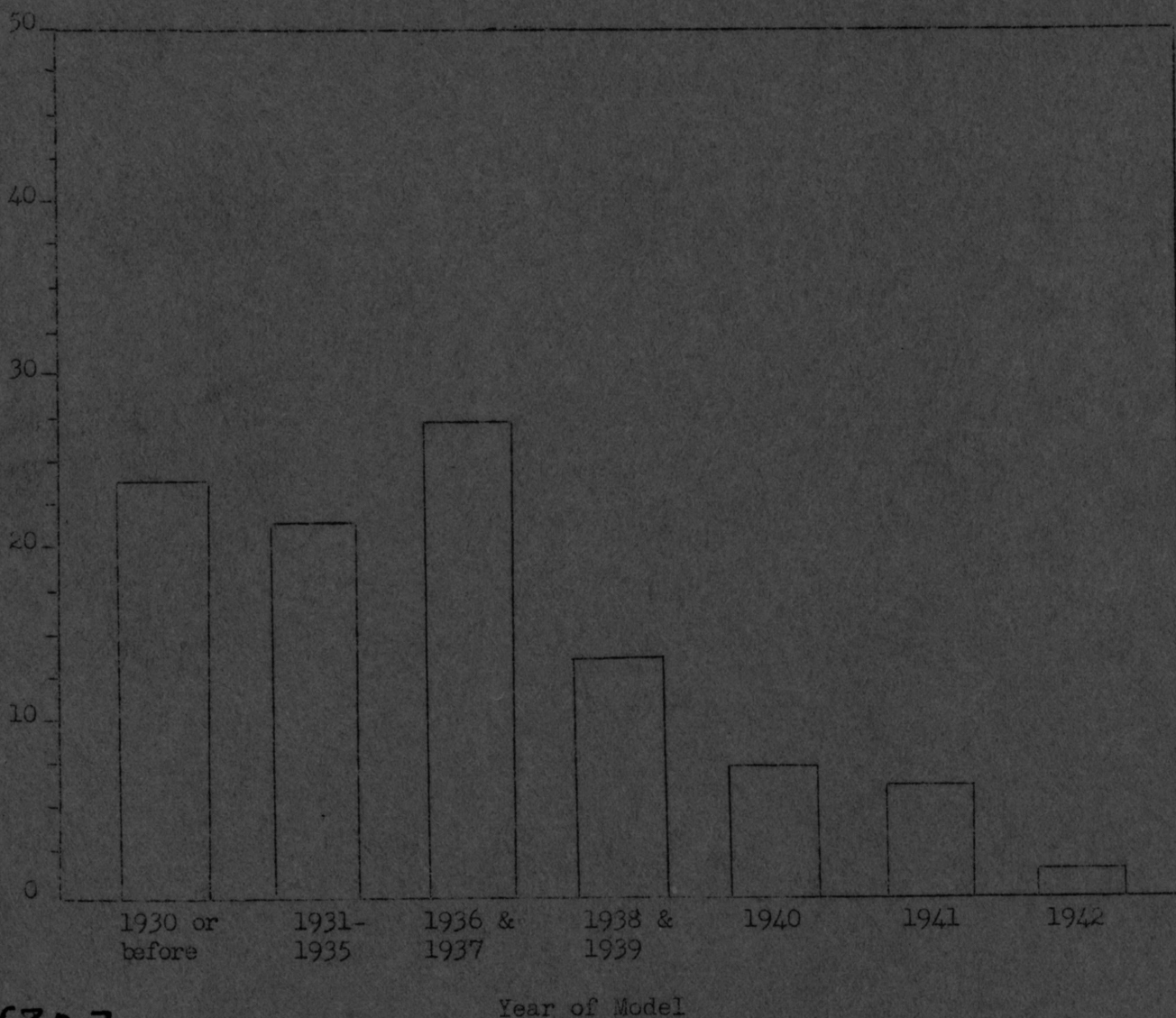
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SURVEY OF FARMER
TRANSPORTATION FACILITIES, NEEDS AND USES

Age of Automobiles Owned by Farmers in
South Dakota, August, 1942

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Agricultural Economics Department, Agricultural Experiment Station
South Dakota State College, Brookings, South Dakota,
with

Agricultural Extension Service and State and County War Boards Cooperating.

FOREWORD

A statewide study of transportation facilities, needs and uses was begun in South Dakota, July 1, 1942. The study was initiated primarily because of the shortage of rubber and the threat of a nation-wide transportation shortage. Although the rubber situation seems to be easing somewhat, it is still very apparent that our transportation facilities must be conserved to the utmost in order to maintain our transportation system for the promotion of the war effort.

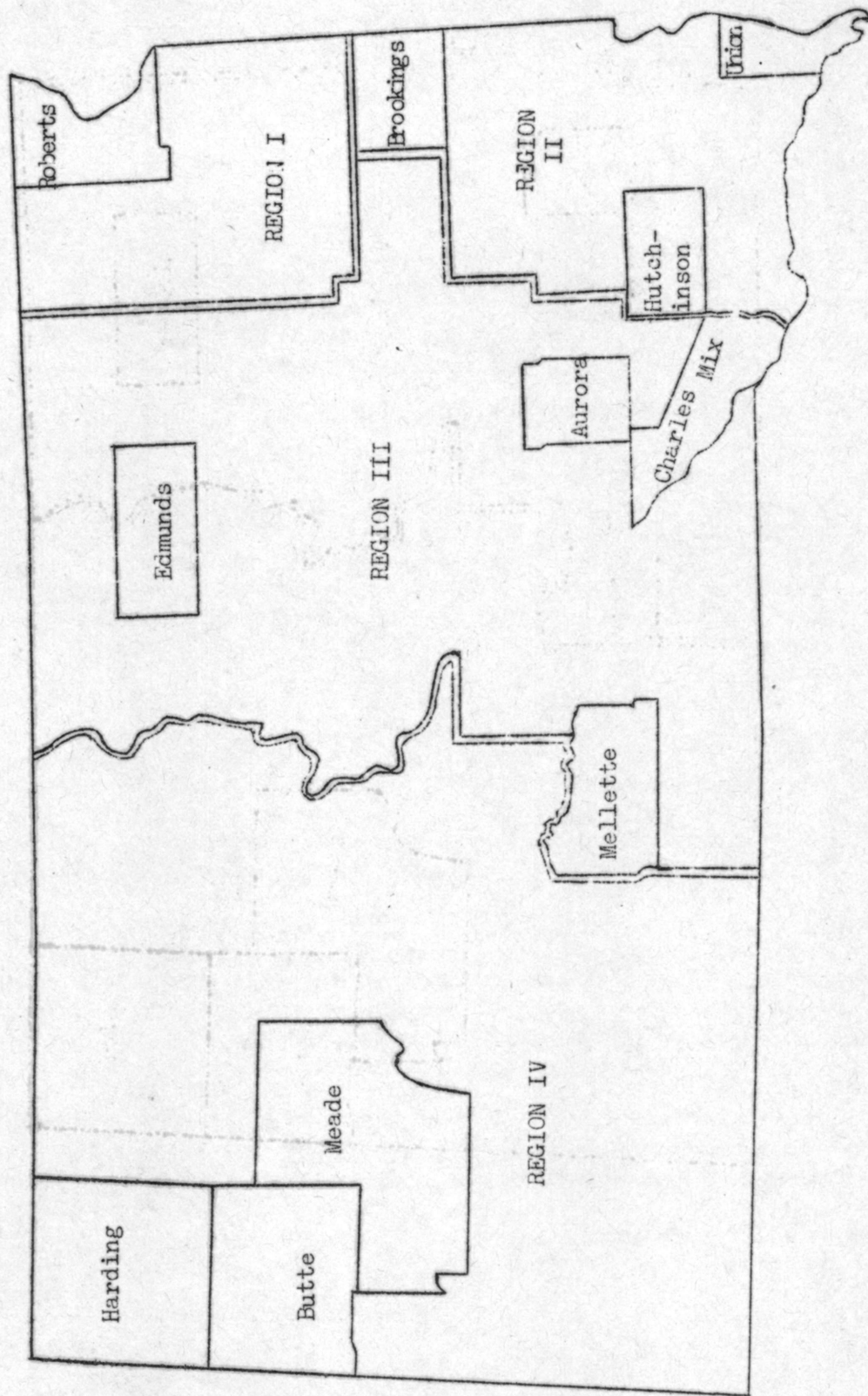
Three phases of the transportation study which is being carried on in South Dakota, have previously been completed: namely, (1) the survey of creamery, produce, and oil routes in eight selected counties (2) survey of the transportation arrangements at livestock markets (3) a study of total in and out shipments and transportation arrangements in fourteen selected counties. A report has been made on the livestock marketing phase, and was issued as Agricultural Economics Pamphlet No. 4, and on the business firm phase issued as Agricultural Economics Pamphlet No. 5. The material presented in this report deals with the survey of farmer transportation facilities, needs and uses.

The objectives as set up for this study are designed to show the following: (1) Extent of the transportation facilities owned by farmers (2) Condition of these facilities (3) Prospective transportation needs (4) Present arrangements for transportation (5) Regional differences in farmer transportation facilities and needs.

The state was divided into four regions for the study in order to determine the extent to which the transportation needs and problems differed in different parts of the state. Data were received from eleven counties in the four regions. The counties and their respective locations are shown in Figure 1.

Securing the data for this study has been made possible by the wholehearted cooperation of the county war board chairmen and the county extension agents who distributed the questionnaires among the farmers.

Figure 1 - Counties Selected For Regionalized Study of Transportation Needs and Facilities in South Dakota, 1942.



Transportation Facilities Owned by Farmers 1/

Transportation problems arising as a result of the war have prompted this survey. Obviously a detailed and comprehensive study, county by county, would be impractical. Eleven representative counties were selected as sample areas that would serve as reliable sources of information. The counties selected were Union, Brookings, Roberts, Hutchinson, Charles Mix, Aurora, Edmunds, Mellette, Meade, Butte, and Harding. Questionnaires were sent to these counties and a total of 268 replies was received from farmers and ranchers scattered throughout the eleven counties. Of this total, 252, or 94 percent owned automobiles.

Approximately one-fourth, or 23.5 percent of the total number of farmers and ranchers reporting, owned trucks. Three-fourths of the trucks owners reported having standard $1\frac{1}{2}$ ton trucks. One and one-tenths percent of the total number owned were semi-trailer types.

Auto trailers were more numerous than trucks. Thirty-four percent of the farm and ranch operators had one or more auto trailer.

Condition of the Transportation Facilities

1930 model automobiles were relatively numerous throughout South Dakota. As indicated by the graph on the cover page, 23.7 percent of all the automobiles reported were 1930 models or older. Twenty-two percent fell within the years 1931 to 1935, while 27.1 percent were purchased in 1936 or 1937. Only 1.1 percent were 1942 models.

Concerning mileage traveled, 16.2 percent of the total number of automobile owners reported having traveled over 75,000 miles. Twenty-eight percent had mileages ranging from 50,000 to 75,000 miles. Twenty-six percent showed mileages varying from 35,000 to 50,000. At this point a distinct drop in the percentage occurs, indicating that approximately 70 percent of the cars then in use had traveled 35,000 miles or more. Only 5.7 percent of the automobile-owners reported mileages of 10,000 or less.

As a means of securing information concerning annual travel, farmers were asked to report upon the specific mileage driven during 1941. Approximately 5 percent of the farmers had driven 15,000 miles or more. Eight percent drove from 10,000 to 15,000 miles in 1941. More than a third of the total, 39.7 percent, drove from 5,000 to 10,000 miles during the single year, 1941. Twenty-seven percent used their cars from 3,000 to 5,000 miles, and 19.7 percent traveled 3,000 miles or less.

An analysis of the age and condition of trucks was requested and the results appear to be significant. Figure 2 shows the farmers' estimates of the condition of their trucks. As of August, 1942, 10.5 percent of the total number replying reported their trucks in excellent condition. Thirty-one percent reported the condition as "good", 43.9 percent "fair", and 14.0 percent were reported as "poor".

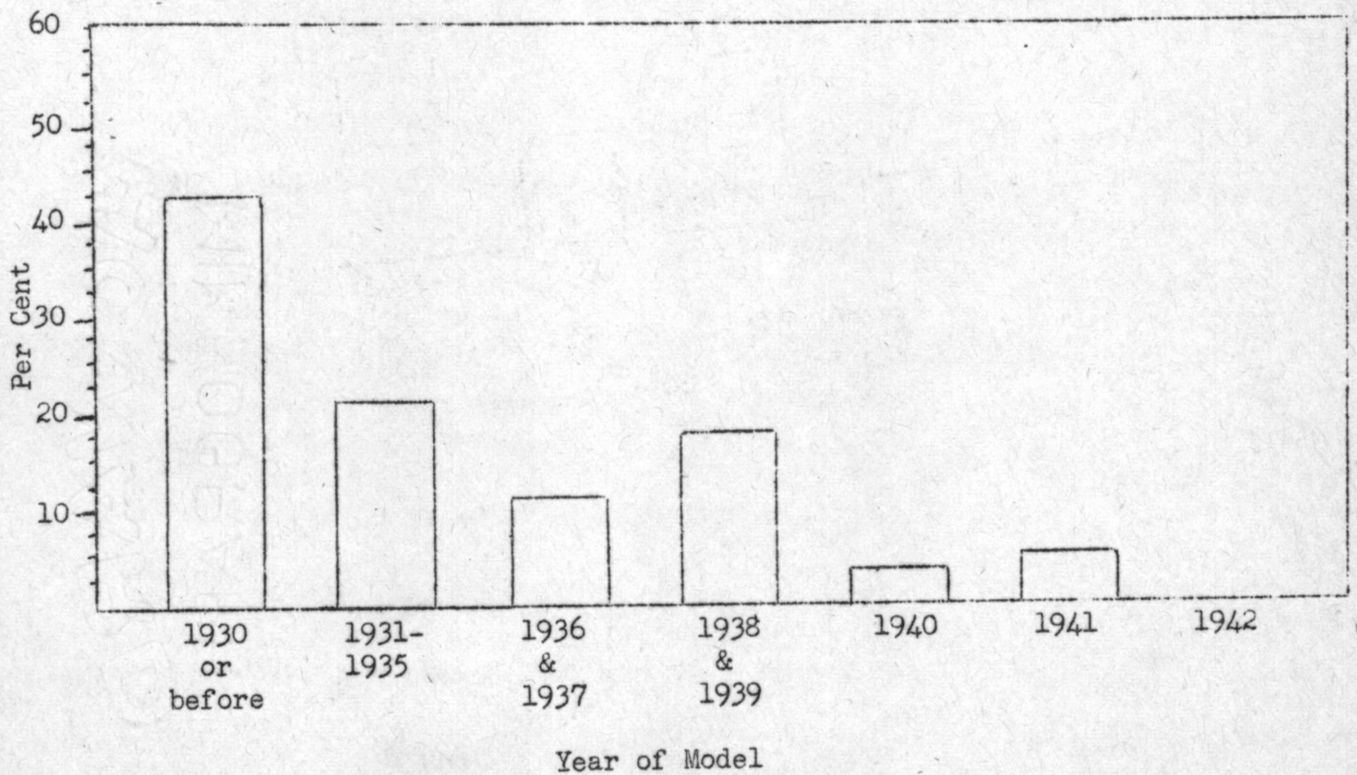
Figure 3 portrays age of trucks, as of August, 1942. No 1942 models were reported. It is significant that 42.4 percent of the total number reported were 1930 models or older, and approximately two-thirds, or 62.7 percent, were 1935 models or older. Nine percent of the total number were 1940 and 1941 models.

1/ This study was begun by W. P. Cotton and completed by Norris J. Anderson

Figure 2 - Estimated Condition of Trucks Owned
by Farmers in South Dakota, August, 1942.



Figure 3 - Trucks Owned by Farmers in South Dakota, August, 1942.



Total mileage traveled by trucks is a matter of considerable interest. Approximately two percent of the trucks had traveled 125,000 miles or more. Four percent showed mileages ranging from 100,000 to 125,000. Forty-three percent of the total number reported having traveled from 50,000 to 100,000 miles, and 38.9 percent had been used only to the extent of from 25,000 to 50,000 miles. Thirteen percent of the trucks in service had traveled 25,000 miles or less.

With reference to distance traveled by trucks in a single year, 1941, 5.6 percent were used for distances ranging from 15,000 to 25,000 miles. Twenty-two percent traveled from 5,000 to 15,000 miles, while 25.9 percent of the total number were used for total distances ranging from 2,000 to 5,000 miles. Forty-six percent of the trucks were used for 2,000 miles or less.

As indicated in Figure 4, the unused tire mileage on automobiles falls largely within the 2,000 to 20,000 mile range. Only a small percent of the tires then in use were reported as having an estimated 20,000 miles of unused service remaining. About 20 percent of the tires in service were expected to run for distances ranging from 10,000 to 20,000 miles. Twenty-three percent of the tires had from 5,000 to 10,000 miles of service left, according to estimates of automobile owners. Approximately 23.8 percent had from 2,000 to 5,000 miles remaining. One-fourth of the tires on automobiles were reported as having less than 2,000 miles of service remaining.

Figure 5 represents an attempt to show the condition of truck tires in service as indicated by the estimated unused mileage. Thirty-five percent of the truck tires then in service were expected to run from 10,000 to 30,000 miles. Forty-five percent had approximately 2,000 to 10,000 miles of unused service, whereas 19.7 percent would run for 2,000 miles or less.

The condition of spare truck tires has been reported as follows. Seventeen percent of the spares had unused mileage ranging from 10,000 to 20,000 miles. The largest percent, 43.5 of the total, had from 5,000 to 10,000 miles of service remaining. The remainder, 39.1 percent of the total number reported, were expected to run 4,000 miles or less.

Prospective Transportation Needs

Farmers were asked to report expected sales of livestock and farm commodities. These reports were summarized and used as a basis for estimating prospective transportation needs. The number of farmers who were willing to estimate the prospective needs was comparatively small, ranging from 5 to 15 percent of the total number contacted. Notwithstanding the small percent of farmers responding, the sample may be considered representative.

The heavy delivery months for cattle were September, October, November and December. Farmers estimated that twenty-five percent of the cattle to be sold were scheduled for sale in September, approximately the same percentage in October, and about 31 percent of the total were to be sold in November and December.

Expected hog sales were to be distributed about as follows. Ten percent of the hogs were scheduled for sale in September. Eight percent of the total number were to be marketed in October, 23.2 in November and 18.7 in December.

Figure 4 - Unused Tire Mileage Automobiles Owned
by Farmers in South Dakota, August, 1942

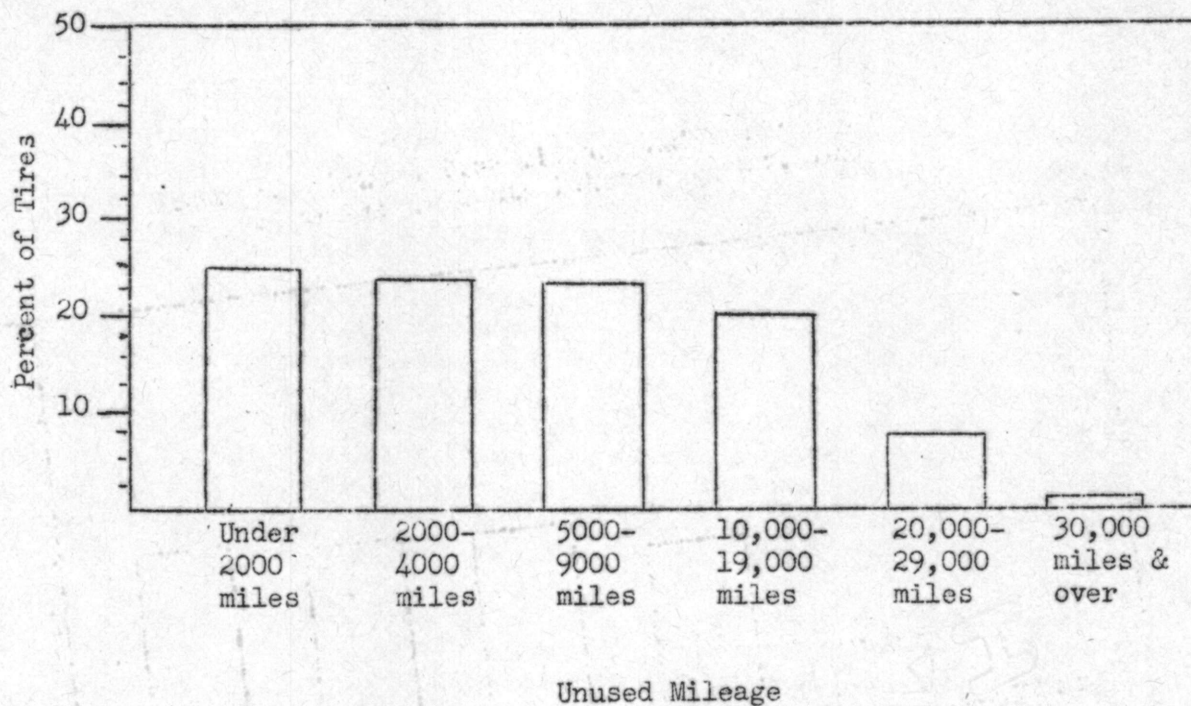
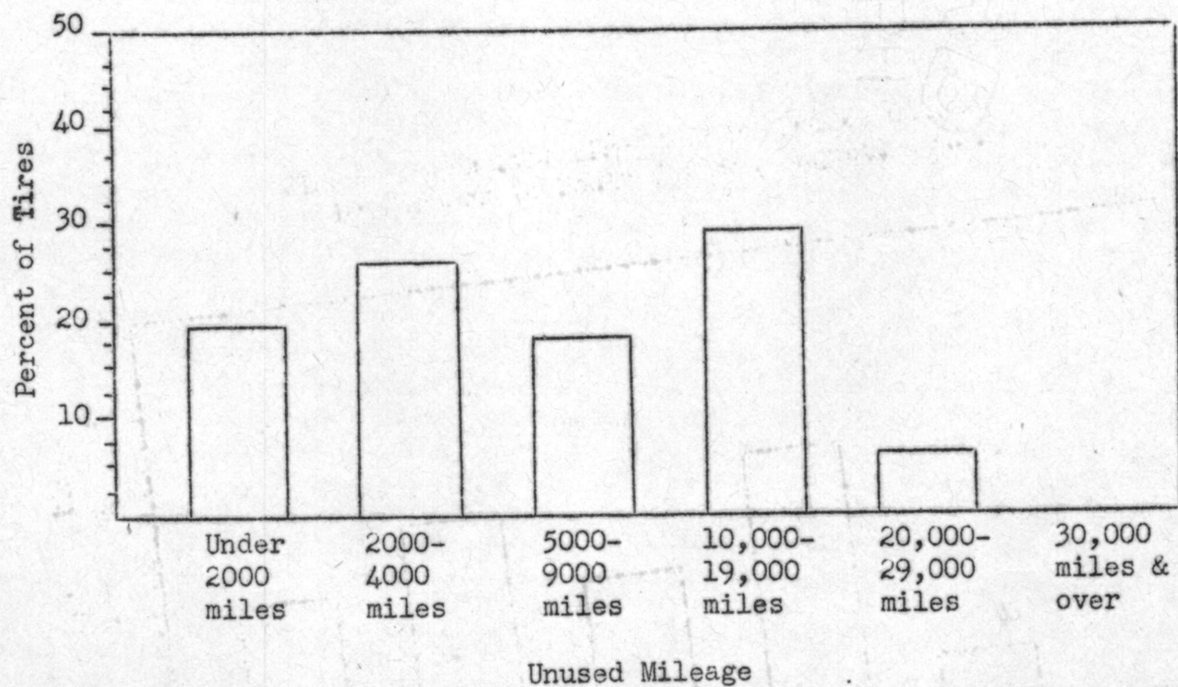


Figure 5 - Unused Tire Mileage Trucks Owned
by Farmers in South Dakota, August, 1942.



Thus a remainder of 35.3 percent was to be withheld from the market until January and February of 1943.

Figure 7 shows the expected sale of wheat by months. Obviously, August and September are the heavy marketing months, with 48.5 percent of the total sales marketed in August, and 33.6 percent in September. Only 17.7 percent of the total crop would require transportation during the three months, October, November and December.

Farmers were asked to report expected purchases by months for separate kinds of livestock and commodities. Figure 8 reveals the expected distribution of feeder cattle purchases by months. Forty-seven percent of the total number of feeder cattle to be fed were purchased in September.

Figure 9 reveals the distribution of feeder-hog purchases by months. October is the heavy purchase month with 42.7 percent of the total purchases to be made in that month.

Mill feed, according to the results of this survey as revealed by Figure 10, is purchased in relatively larger quantities in September, November and December than during other months. Thirty-four percent of the total quantity purchased during a seven-months period from August, 1942, to February, 1943, was bought in September. Sixty-seven percent of the total quantity purchased during this period would require transportation during September, November and December. While the proportion of farmers reported as requiring mill feed in sizable quantities is not large, those who do use mill feeds reported needing approximately 2.5 tons per farm in September.

As a means of revealing the nature of the over-all transportation needs which call for the use of automobiles, farmers were asked to report the purposes for which trips were made during one week in August. Figure 11 shows the results of this purpose-of-trip survey. Thirty-seven percent of the trips made pertained to trading and the securing of supplies. Trips for repairs rank second in importance, and those were "special" trips for the most part. Obviously, this relatively large percent of special trips for repairs, namely 21.4, is significant, for it indicates the need for adequate travel facilities during the busy season in agricultural communities.

Figure 12 shows the results of the purpose-of-trip survey with respect to the use of trucks. In this case supplies also rank high as a cause of travel, constituting 24.7 percent of the total number of purposes for which trips were made. Grain hauling, farm work and repairs rank next, in the order named. The hauling of livestock does not necessitate a large amount of truck travel in the particular month selected for this study. These results must be interpreted in terms of the month into which this purpose-of-trip survey occurred. At any other time of the year the same relationship among the purposes for which trips are made would, obviously, not occur.

Present Arrangements For Use of Transportation Facilities

An attempt was made to discover the extent to which farmers might be able to "double up" or use jointly the existing transportation facilities. Farmers were asked to report trips made during a one-week period in August, 1942, in a vehicle owned by a neighbor. Only 6.3 percent reported making trips in a vehicle owned by another.

Figure 6 - Unused Mileage of Spare Tires of Automobiles Owned by Farmers in South Dakota, August, 1942.

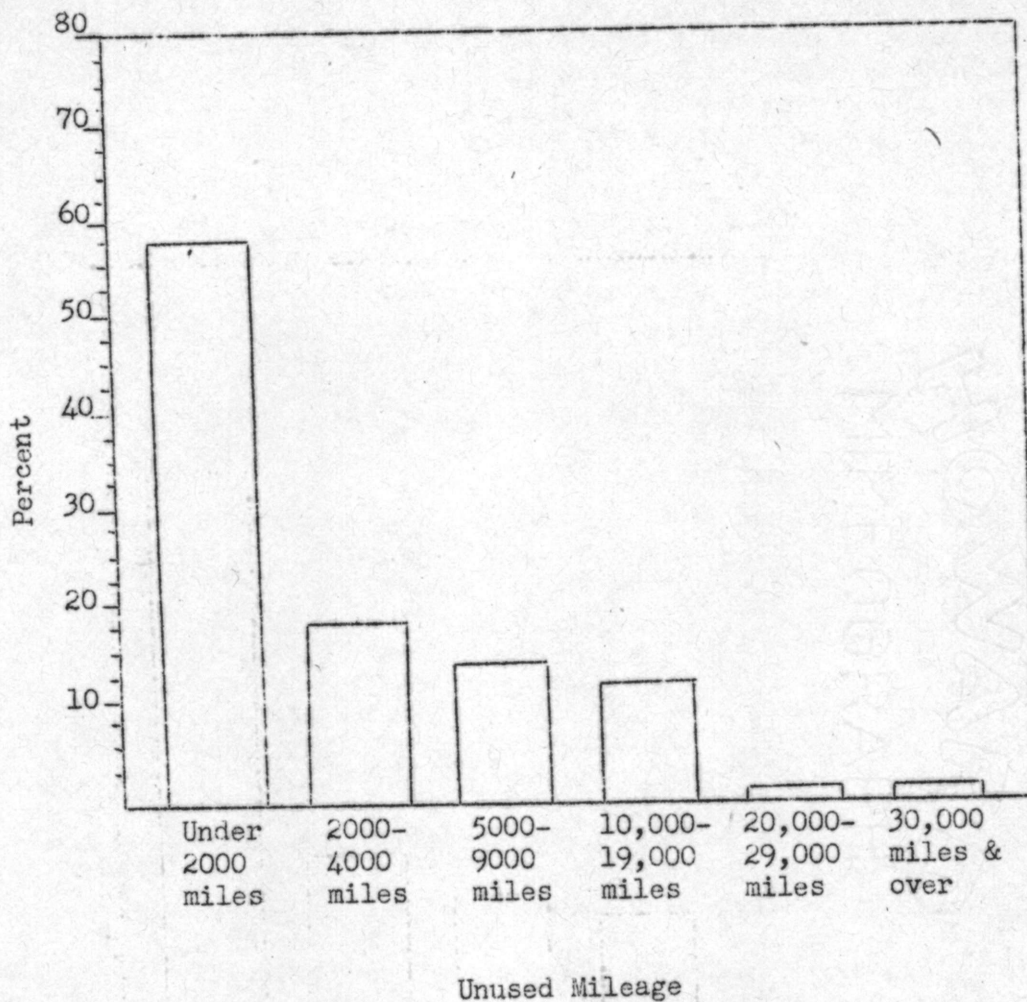


Figure 7 - Estimated Distribution of Wheat Deliveries, August 1, 1942, to March 1, 1943, South Dakota.

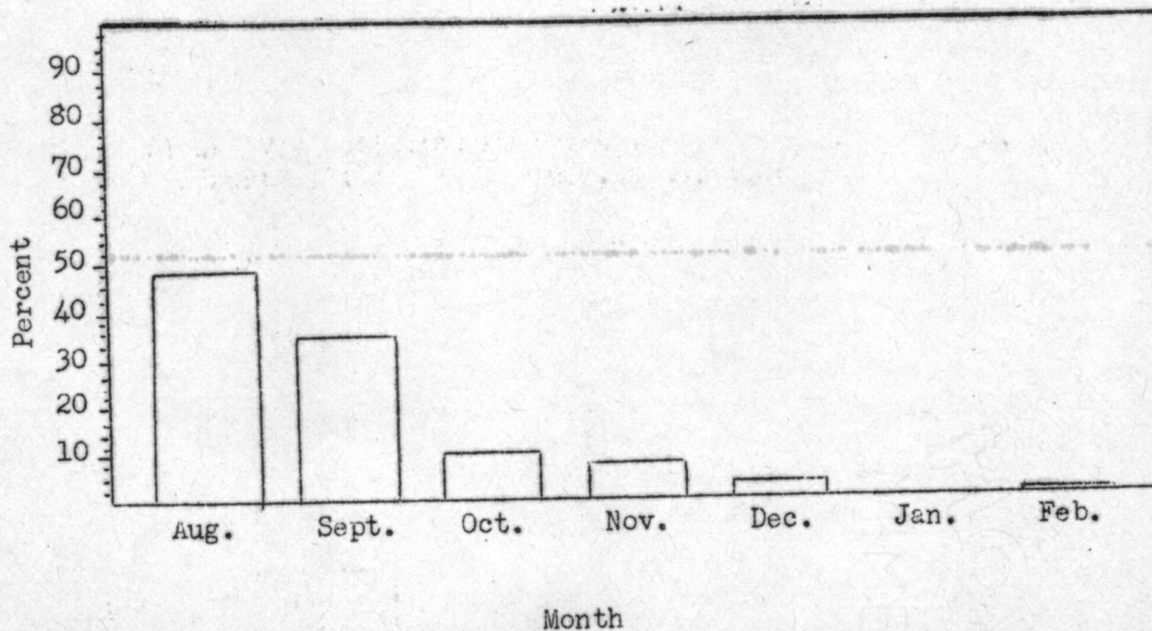


Figure 8 - Estimated Distribution of Feeder Cattle Purchases
August 1, 1942 to March 1, 1943, South Dakota

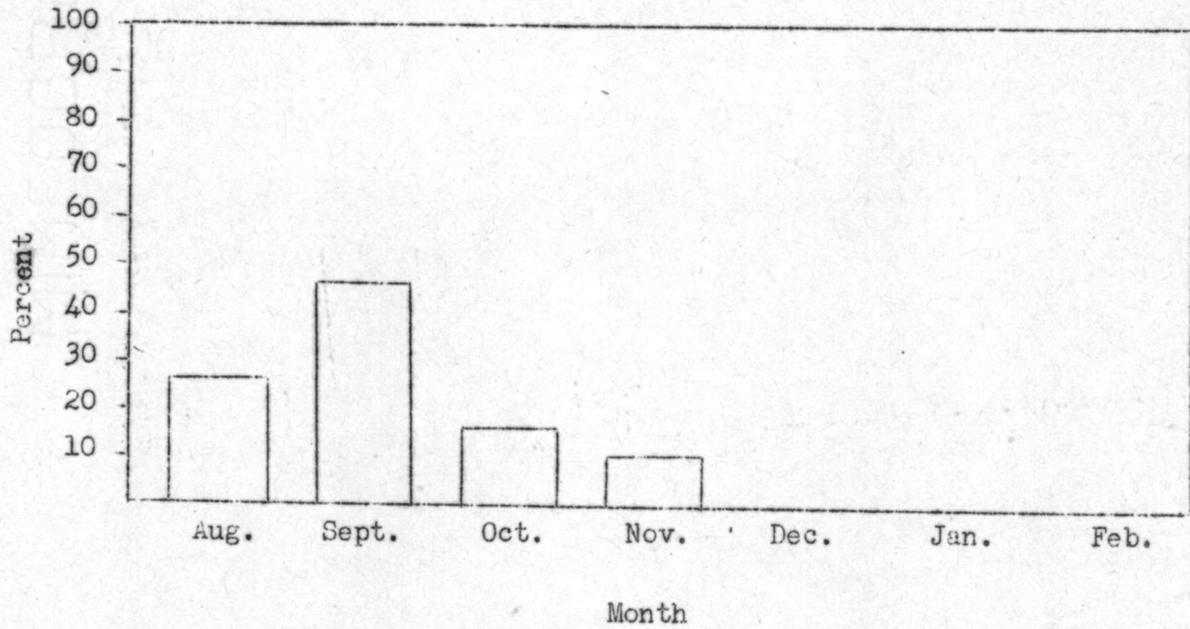


Figure 9 - Estimated Distribution of Feeder Pigs Purchases
August 1, 1942 to March 1, 1943, South Dakota.

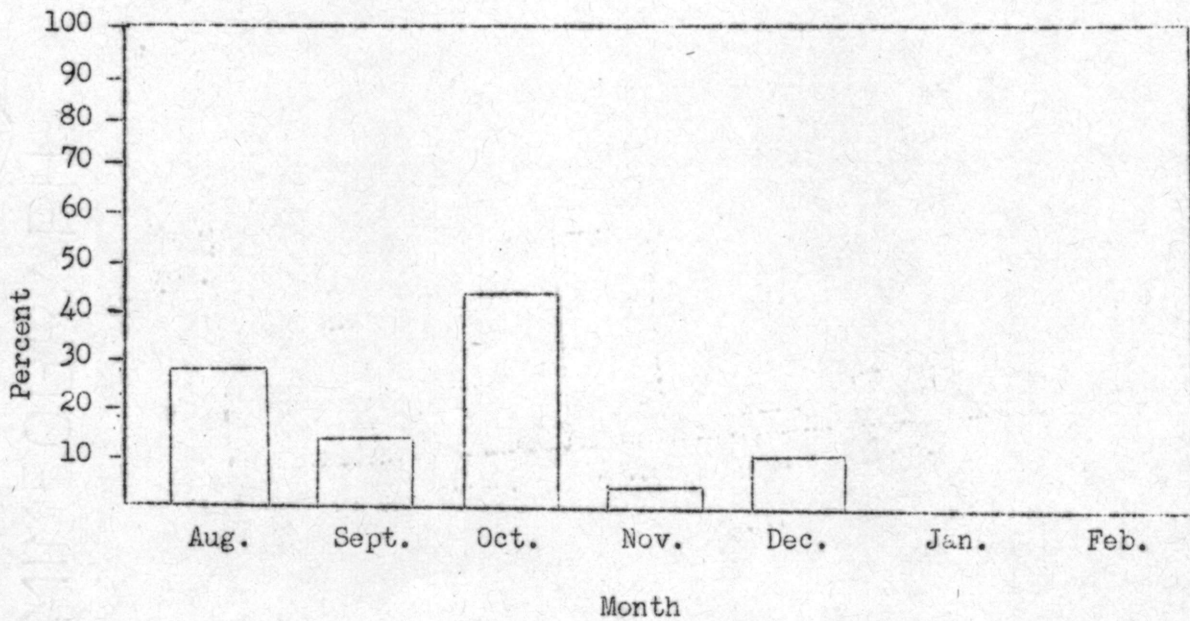


Figure 10 - Estimated Purchases of Mill Feeds August 1, 1942 to March 1, 1943, South Dakota.

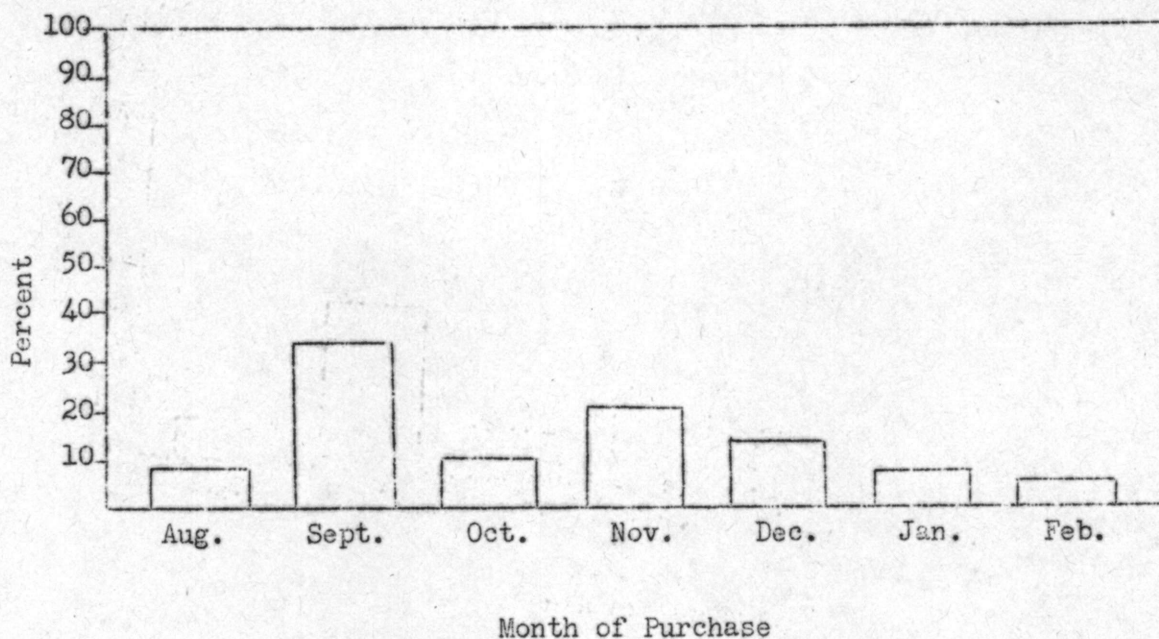
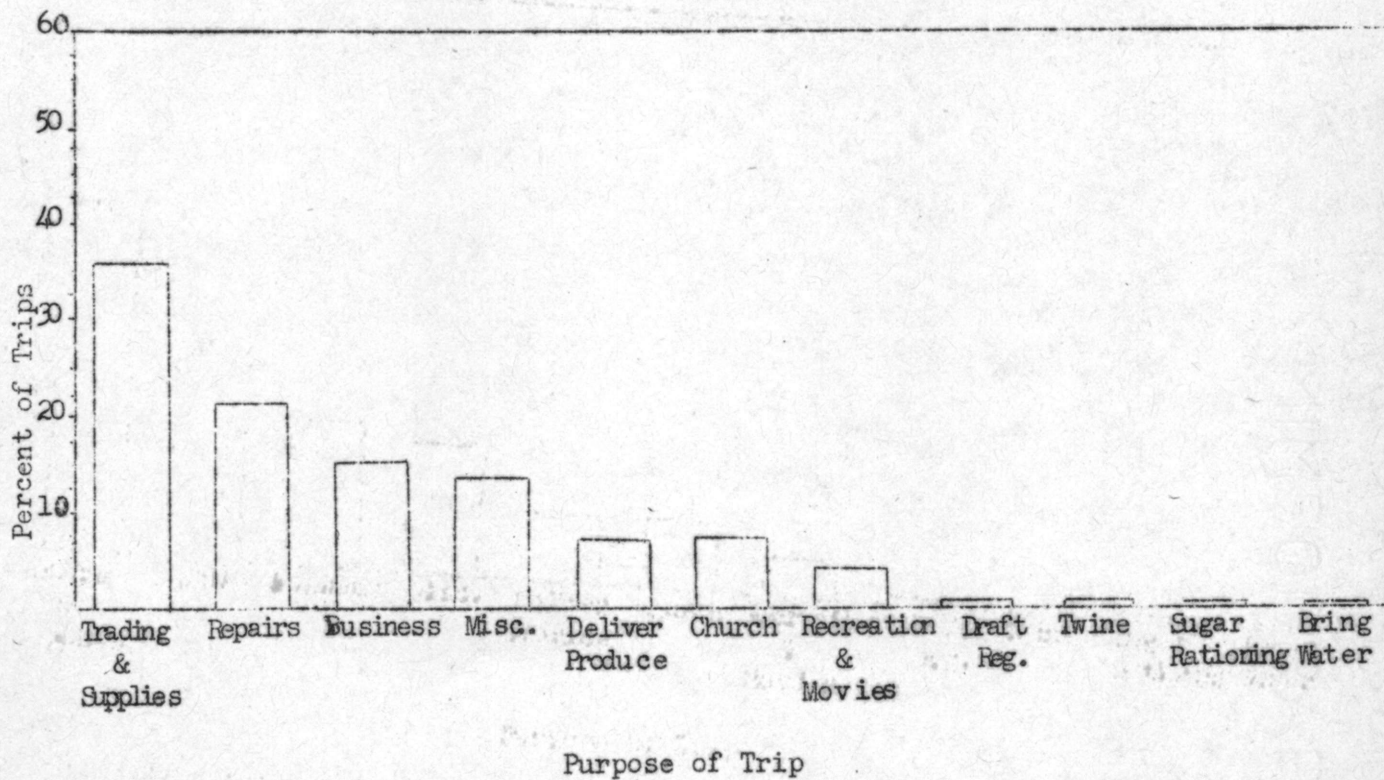


Figure 11 - Farmer Analysis of Purpose of Automobile Trips Made During One Week in August, 1942.*



*Percents will not total 100 because some trips were made for more than one purpose.

Farmers were also asked to report pickups of cream or other produce by trucks operated by purchasers of farm produce. The percent of pickups reported is relatively insignificant. Five percent of the farmers reported deliveries of oil, gas and other petroleum products. Less than one percent reported deliveries of feed, grain, groceries and other supplies.

Regional Differences in Farmer Transportation Facilities and Needs

As previously explained, South Dakota was divided into four regions, with the western half--the thinly-settled portion--as Region IV. This break-down into regions was planned as means of detecting regional differences in transportation problems and needs based upon differences in distance to markets, churches and schools. Region IV, the western region, has transportation needs not found in the eastern regions. At the same time, the similarity among the eastern regions, numbers one, two and three, is so marked that separate treatment for each seems unnecessary. Therefore, attention will be focused upon (1) Region IV, and (2) the average condition in Regions I, II, and III

Farmers were asked to report trips made by themselves during a one-week period in August, 1942, in automobiles and trucks owned by themselves. Information concerning the length of the round trip was supplied in each case. Figures 13 and 14 portray the results of this portion of the survey.

In Region IV, 27.7 percent of the automobile round trips ranged from 26 to 50 miles in length. In contrast, only 11.3 percent of the trips made in Regions I, II and III fall within 26 to 50 mile range. Approximately 30 percent of the trips made in Region IV were 50 miles in length or greater, whereas in Regions I, II and III, 3.2 percent of the trips made were 50 miles or more. The distance problem, obviously, would be of approximately the same nature for trucks and cars alike within the same region. Figure 14 reveals the situation with respect to length of round trip for trucks. Again it becomes apparent that the transportation needs of Region IV are distinct from those of the more thickly settled areas of the state; 30.8 percent of the trips in Region IV are 50 miles in length, or more. Only 3.7 percent of the travel in Regions I, II and III involves round trips of 50 miles or more.

Concerning the age of automobiles, (Figure 15) there appears to be no consistent pattern in the differences between the condition within Region IV and the three other regions. The percent of 1930 and older models is greater in Region IV than the average of Regions I, II and III. It is significant that in Region IV, where distances are great and transportation needs are prominent, the percent of old model automobiles is 50 percent greater than elsewhere in the state. It is also significant that the percent of 1940 models in Region IV is approximately double that of the same model elsewhere in the state. Concerning 1941 models, a comparison of the percents of that model in Region IV and the remainder of the state reveals no significant difference.

Figure 12 - Farmer Analysis of Purpose of Truck Trips
Made During One Week in August, 1942.

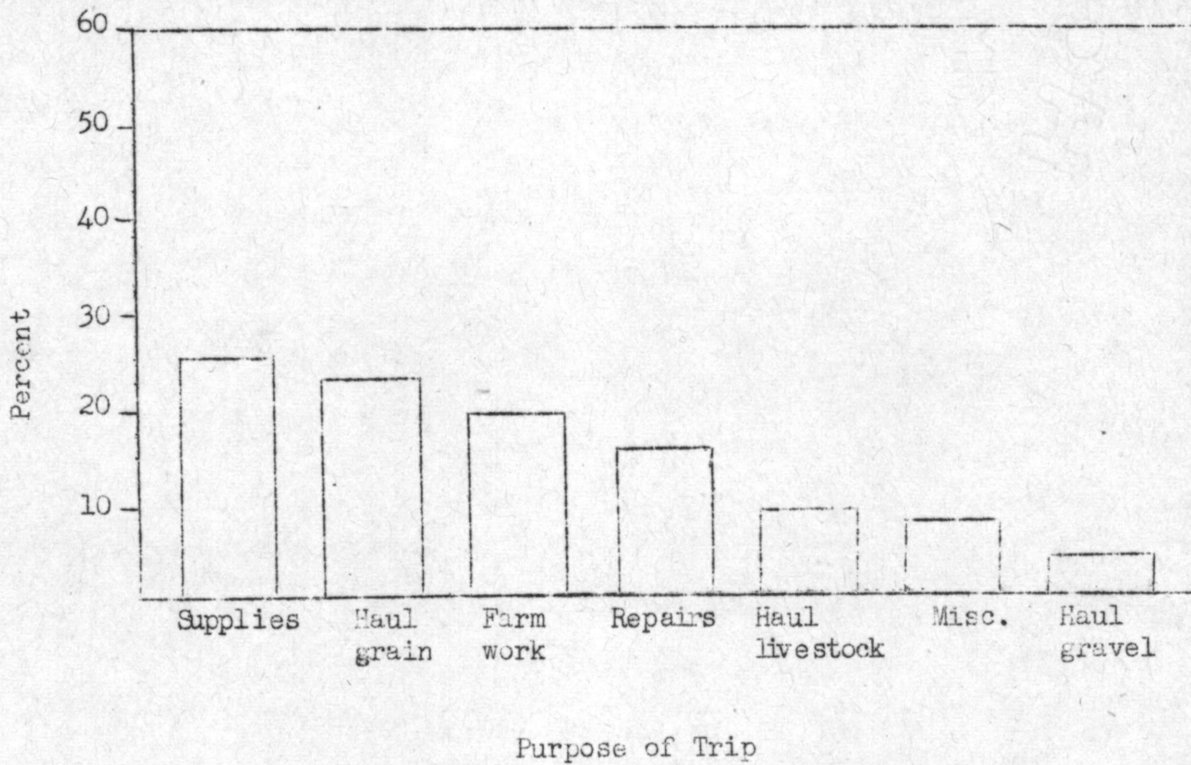


Figure 13 - Comparison of Regions I, II and III With Region IV on the Basis
of Trips Made by Farmers in Automobiles, One Week in August, 1942.

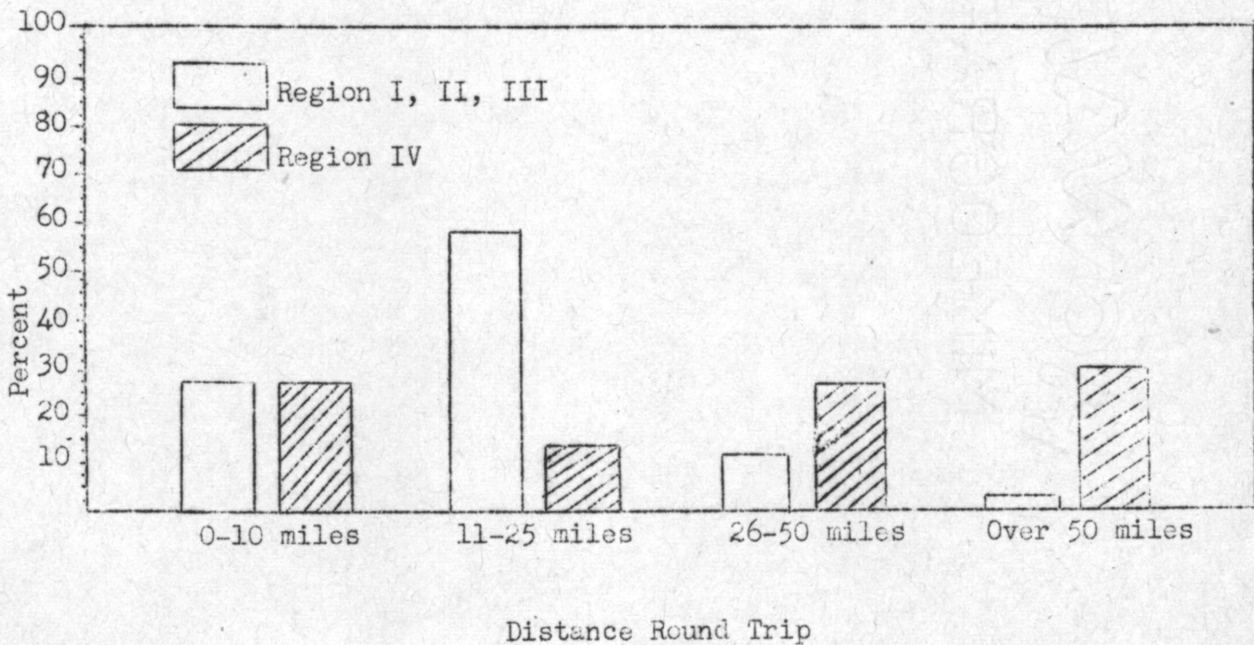


Figure 14 - Comparison of Regions I, II, and III, with Region IV on the Basis of Trips Made by Farmers in Trucks, One Week in August, 1942.

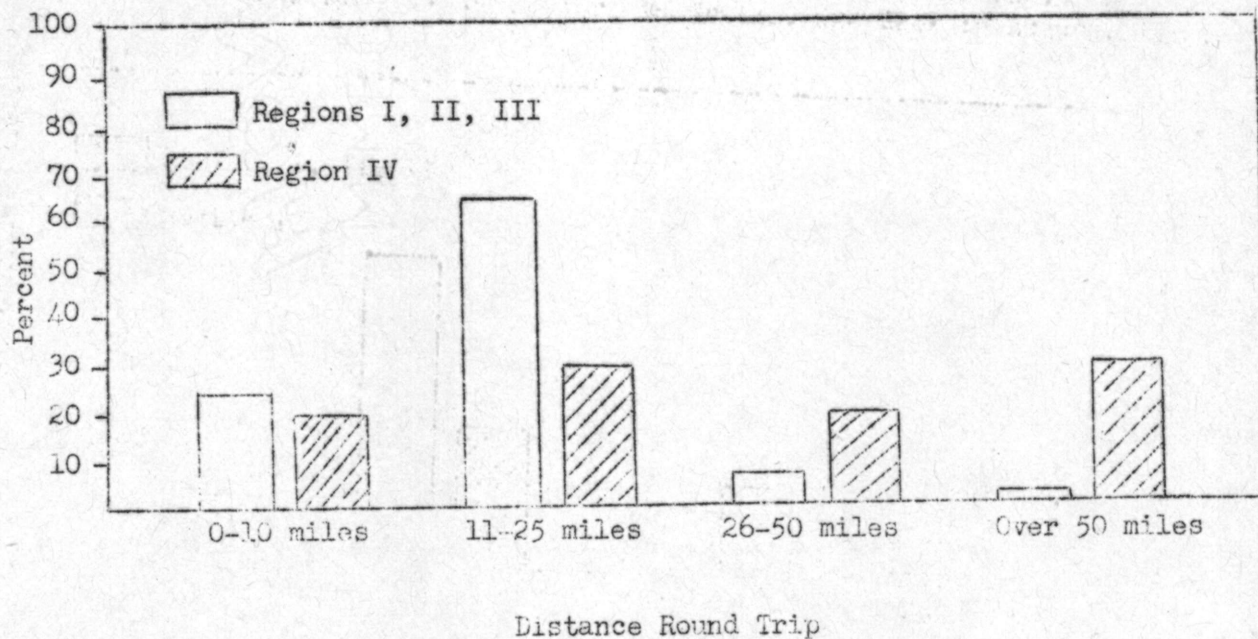
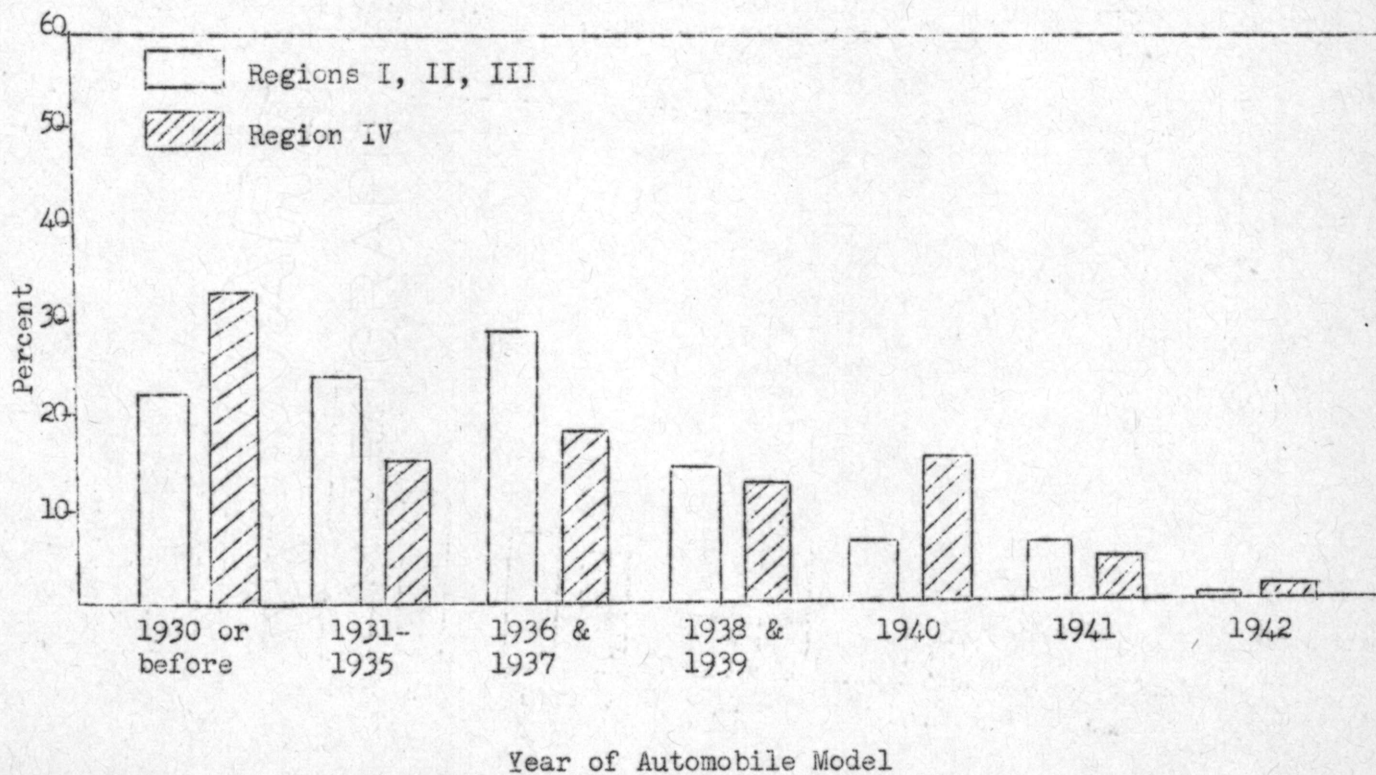


Figure 15 - Comparison of Regions I, II, and III, and Region IV on the Basis of Age of Automobiles Owned and Operated by Farmers, South Dakota, August, 1942.



SUMMARY

The percent of all automobiles twelve or more years old is relatively large in South Dakota; approximately one-fourth of the automobiles in use were 1930 models or older. Sixteen percent of the total had traveled 75,000 miles or more; an additional 70 percent of the total number of cars in use had accumulated mileages of more than 35,000 each.

The median range of travel for a single year, 1941, was 5,000 to 10,000 miles. Thirteen percent of the farmers reported driving more than 10,000 miles per year; approximately one-fourth of the total reporting fall within a range of from 3,000 to 5,000 miles.

Four-fifths of the farmers who own trucks reported total mileages ranging from 25,000 to 100,000 miles. Approximately one-half of these farmers estimated that their trucks were in "good" condition and the other half reported the condition as "fair". The reported condition of truck tires was less encouraging. Forty-five percent of the tires in service in August, 1942, had less than 9,000 miles of unused service left. Approximately 20 percent of the tires were expected to run 2,000 miles or less.

The transportation needs of the western half of South Dakota, Region IV, are distinct from those of the eastern regions of the state. In Region IV slightly more than one-fourth of the automobile round trips were from 26 to 50 miles in length. Only 11.3 percent of the trips made in the eastern regions fall within the 26 to 50 mile range. Thirty percent of the trips made in Region IV were 50 miles in length or greater, whereas only 3.2 percent of the trips in Regions I, II and III averaged 50 miles or more.

Truck and automobile transportation have become increasingly important in South Dakota. Adequate transportation facilities will stimulate the production and marketing of agricultural products, and will also stimulate renewed interest in attaining war production goals. If this state's food production goals are to be attained, the farmer must not be hampered by a too-severe curtailment of transportation facilities.