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Market Factors
OF NORTH DAKOTA
Hard Red Spring Wheat Shipments

JULY - DECEMBER, 1964

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FOREWORD

The intention of this publication is to again establish the high quality of Hard Red Spring wheat which leaves North Dakota production areas via railroad destined for eastbound markets.

This study was made possible by a grant provided by the North Dakota State Wheat Commission to the Department of Agricultural Economics for continuing the study of the "Factors Affecting the Marketing of North Dakota Wheat." Previous publications which have evolved from this analysis are:

1. Wheat Statistics for North Dakota, Agricultural Economics Report No. 20, August, 1961.

2. Protein Content of North Dakota Wheat, North Dakota Farm Research, March-April, 1962.

3. Market Factors of North Dakota Hard Red Spring Wheat, Agricultural Economics Report No. 21, April, 1962.

4. North Dakota Hard Red Spring Wheat Shipments, North Dakota Farm Research, September-October, 1962.

5. Durum Market Factors, 1962, North Dakota Farm Research, January-February, 1963.

6. Quality Factors of North Dakota Durum Shipments, 1960, 1961, 1962, Agricultural Economics Report No. 26, January, 1963.

7. Durum Data, Agricultural Economics Report No. 27, February, 1963.

8. Market Factors of North Dakota Hard Red Spring Wheat, 1962 Shipments, Agricultural Economics Report No. 28, February, 1963.

9. Market Factors of North Dakota Hard Red Spring Wheat, 1963 Shipments, Agricultural Economics Report No. 33, March, 1964.

10. Market Factors of North Dakota Durum Wheat, 1963 Shipments with Comparisons, Agricultural Economics Report No. 34, April, 1964.

11. Quality of Commodity Credit Corporation Wheat in North Dakota Country Warehouses and Subterminals, North Dakota Farm Research, May-June, 1964.

12. Movement of North Dakota Grain by Truck, October-Nobemver, 1963, North Dakota Farm Research, July-August, 1964.

13. Economic Implications of the Wheat Sedimentation Test on the North Dakota Economy, Clinton D. Kurtz, unpublished Master's thesis, Department of Agricultural Economics, North Dakota State University, Fargo, North Dakota, October, 1964.

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MARKET FACTORS OF NORTH DAKOTA HARD RED SPRING WHEAT SHIPMENTS, JULY - DECEMBER 1964, WITH COMPARISONS

David C. Nelson and Fred R. Taylor[1]

The 1964 spring wheat production represents by most physical measurements a banner year for North Dakota wheat farmers. Although the estimated 93,126,000 bushels produced is not the largest volume harvested in recent history, the crop compares very well when considering other relative factors. Approximately 4,233,000 acres were harvested in 1964, which is well below the 1950-59 10-year average of 6,554,000 acres. The 1964 average yield per acre of 22 bushels was significantly higher than 1950-59 10-year average of about 14.3 bushels per acre.[2]

Continued high production on fewer and fewer acres means that consistently sufficient supplies of North Dakota Hard Red Spring wheat are available for consumption in domestic and foreign markets. While the various market mechanisms will reflect the variation in quality of this wheat through prices paid to farmers, it is continually necessary to maintain good information regarding the quality factors which in part determine the final return to producers. Only with improved knowledge of the overall product can producers and members of the grain trade assess how well the economic system has rewarded North Dakota farmers for consistently high performance.

The specific grading factors for spring wheat are of particular interest. Such factors as test weight, heat-damaged kernels, foreign material, shrunken and broken kernels, and contrasting classes will determine the final grade of any lot of wheat. This grade will then partly determine the price a specific lot will attract in the market.

In addition the level of protein is significant. The protein measurement will determine the amount of premium paid for specific lots in conjunction with the basic grade price.

Objectives

As was true of the previous reports in this series, the objective is to provide as complete a breakdown as possible of the 1964 Hard Red Spring wheat crop leaving North Dakota via railroad during the period July through December, 1964. Shipments are stratified by origin, by the various grading factors, and by protein, moisture, and dockage. Analysis is made of the importance of each grading factor in determining each grade.

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[2]Statistical Reporting Service, U.S. Department of Agriculture, Fargo, North Dakota.

Procedure

The survey sample is expected to represent the total volume of grain leaving the state via railroad during the period considered. Data were collected in a manner similar to the surveys performed for the 1961, 1962, and 1963 crop movements. Comparisons are thereby possible in order to determine variation between the specific crops.

Similar to the 1961, 1962, and 1963 surveys, an approximate 10 per cent sample of all carlot inspection reports of carloads leaving North Dakota origins was taken. The sample period was from July 1, 1964 through December 31, 1964. The total useable sample contained 836 carload inspection records (Table 1). In fact, more samples were actually taken, but observation revealed that only 836 contained quantitative measurements of each factor to be analyzed. Consequently, only those samples were included in the overall analysis which reported some measurement of the specific grading or other factors being examined.[3]

TABLE 1. NUMBER OF CARLOTS INCLUDED IN 1964 SAMPLE, BY GRADE AND INSPECTION CENTER, AND 1964, 1963, 1962, AND 1961 PERCENTAGE GRADE DISTRIBUTION

Grade	Inspection Center				STATE TOTAL	1964 per cent	1963 per cent	1962 per cent	1961 per cent
	Minot	James-town	Grand Forks	Fargo					
	- - - - - - - carlots - - - - - - -								
No. 1 Heavy DNS	1	20	31	1	53	6.4	19.5	42.3	34.0
No. 1 DNS	134	75	77	6	292	34.9	29.0	36.2	44.6
No. 2 Heavy DNS	2	12	4	-	18	2.2	-	-	-
No. 2 DNS	83	89	73	9	254	30.4	14.9	11.2	12.3
No. 3 Heavy DNS	-	-	1	-	1	0.1	-	-	-
No. 3 DNS	18	52	79	5	154	18.4	25.9	7.1	6.6
No. 4 DNS	5	18	24	4	51	6.1	9.1	1.9	1.0
No. 5 DNS	-	3	3	1	7	0.8	1.4	0.2	0.1
S. G. DNS	-	2	1	-	3	0.4	0.2	0.5	1.3
No. 1 Heavy NS	-	-	-	-	-	-	-	0.2	-
No. 2 Heavy NS	-	1	-	-	1	0.1	-	-	-
No. 1 NS	1	-	-	-	1	0.1	-	0.4	0.1
No. 3 NS	1	-	-	-	1	0.1	-	-	-
ALL GRADES	245	272	293	26	836	100.0	100.0	100.0	100.0

[3]For example, many of the original samples did not include an analysis of protein. To include these in the protein analysis assumes a zero protein level which, of course, is highly unrealistic.

Inspection records from the four inspection points supplied all the information used relative to grading. This includes test weight, moisture content, dockage, damaged kernels, foreign material, shrunken and broken kernels, and contrasting classes. Protein content for each sample was obtained from the protein laboratory located at each hold point station.

Origins were derived from railroad manifests. The area sampled is shown in Figure 1.

Findings

Only 11 of North Dakota's 53 counties were not included in the total sample area. The distribution of the results of the analysis of the Hard Red Spring wheat shipped from these 42 counties shows the following pattern: Approximately 74 per cent of the wheat which was included in the total sample graded No. 2 DNS or better, while about 92 per cent graded at least No. 3 DNS. In 1963 about 63 per cent graded No. 2 DNS or better, while in 1962 and 1961, 90 and 91 per cent, respectively, fell within this grade category.

The largest single grade category was No. 1 DNS. About 35 per cent of the total sample was graded this high. Of the four years studied only the 1961 shipments contained a significantly greater proportion of No. 1 DNS, about 45 per cent. On the other hand, a greater proportion of the total 1964 sample graded No. 2 DNS than any other sample year. While a greater proportion was appearing in the latter category, a much smaller proportion appeared in the No. 1 Heavy DNS category in the latter year than in any other sample year.

This indicates that even though the majority of the shipments graded quite high in 1964 (No. 2 DNS or better), there was a decided change in the proportional distribution among the top four grades (No. 1 Heavy DNS-No. 2 DNS). The factors causing this distribution profile are highlighted in the appendix tables where each of the factors are analyzed concerning their single and collective effect on grade determination.[4]

The percentage distribution and number of carlots by grade and crop reporting district indicate that the Northwest District had the highest proportion of shipments falling within the No. 1 DNS category, while the Northeast District had the highest proportion falling within the No. 1 Heavy DNS category (Table 2). In 1963 the Northwest District had the highest per cent of shipments in the No. 1 Heavy DNS and No. 1 DNS categories.

In the lower grades (No. 3 DNS or less) the bulk of the shipments seemed to originate from the Northeast and the Central Districts. Shipments of these grades from the 1963 crop generally originated in the Northwest, South Central, East Central, and Northeast Districts.

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[4]In addition, high July temperatures combined with a high incidence of rust caused lower test weights. Lower test weights cause difficulty in blending to higher grades.

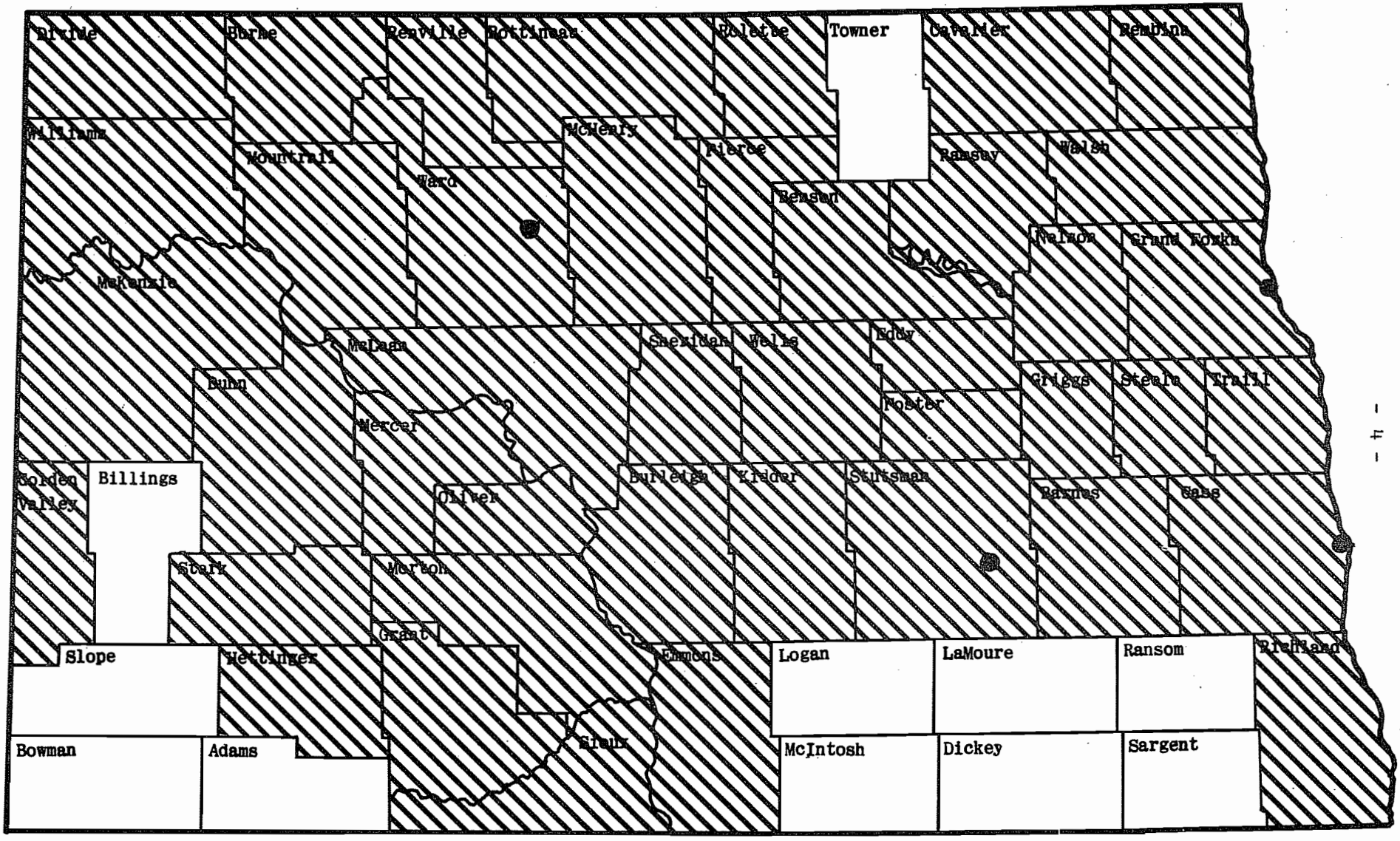

Figure 1. Counties Included in 1964 Sample of Carlots Inspected at North Dakota Hold Points.

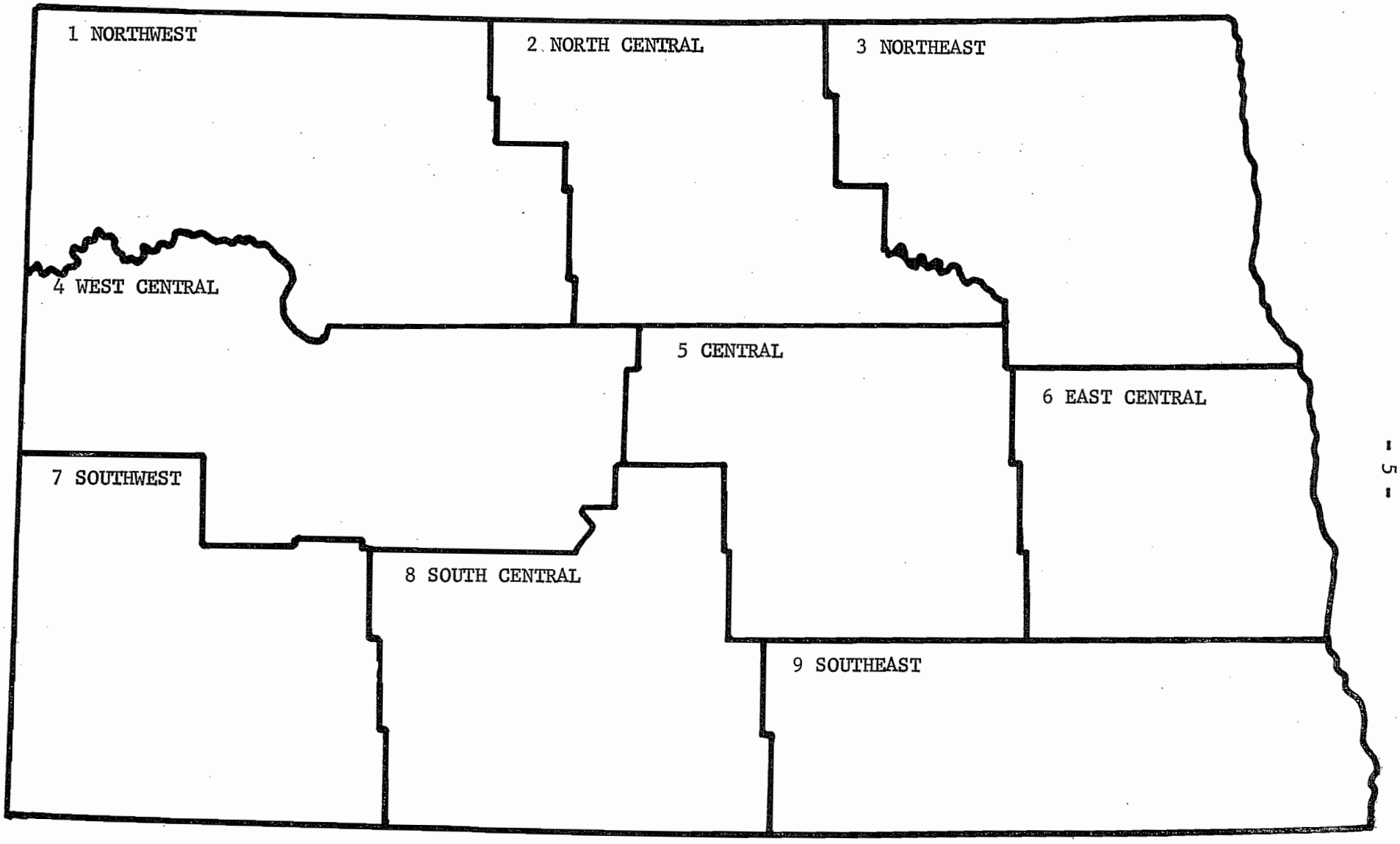

Figure 2. North Dakota Crop Reporting Districts.

TABLE 2. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOTS INCLUDED IN SAMPLE SURVEY, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Crop Reporting District									STATE TOTAL	Per cent
	South-west	West Cent.	North-west	South Cent.	Cent.	North Cent.	East Cent.	North-east	South-east		
	number of carlots										
No. 1 Heavy DNS	7	8	-	4	4	-	2	28	-	53	6.4
No. 1 DNS	7	37	126	22	16	11	13	58	2	292	34.9
No. 2 Heavy DNS	7	1	1	2	2	-	2	3	-	18	2.2
No. 2 DNS	12	16	74	38	28	12	16	55	3	254	30.4
No. 3 Heavy DNS	-	-	-	-	-	-	-	1	-	1	0.1
No. 3 DNS	4	7	16	14	28	7	9	68	1	154	18.4
No. 4 DNS	-	-	5	3	12	9	5	17	-	51	6.1
No. 5 DNS	-	-	-	-	2	-	2	3	-	7	0.8
S. G. DNS	1	-	-	-	2	-	-	-	-	3	0.4
No. 2 HNS	1	-	-	-	-	-	-	-	-	1	0.1
No. 1 NS	-	-	-	-	-	-	-	1	-	1	0.1
No. 3 NS	-	-	1	-	-	-	-	-	-	1	0.1
ALL GRADES	39	69	223	83	94	39	49	234	6	836	100.0

PROTEIN

All crop reporting districts except the West Central District had higher protein averages than the previous year (Table 3). The averages for all districts ranged from a low lf 14.5 per cent in the Southeast District to a high of 15.4 per cent in the Southwest and East Central Districts. The overall average of the sample (829 carlot samples) was about 15.0 per cent. This was higher than either the 1963 or 1962 samples and about the same as the 1961 sample.

More specific information regarding protein can be found in the appendix tables (B-1 through B-10). The highest county average was in Golden Valley (Southwest District) with 15.9 per cent, while the lowest was in Burke County with 13.7 per cent. Protein content of samples ranged from 15.0 to 15.4 per cent and accounted for 23.2 per cent or 192 carlots of the total sample. This category accounted for 25.8 per cent of the total sample in 1963. Approximately 86 per cent of the total sample measured 14 per cent or better, while about 85 per cent of the total 1963 sample measured 14 per cent or better.

TABLE 3. AVERAGE AND RANGE OF PROTEIN CONTENT OF CARLOT SAMPLES OF HARD RED SPRING WHEAT SHIPMENTS, BY CROP REPORTING DISTRICT, AND STATE TOTALS FOR 1964, 1963, 1962, AND 1961

Crop Reporting District	Total Number of Shipments	Protein Content, Per Cent	
		Average	Range
Southwest	39	15.4	13.4 - 17.1
West Central	69	14.7	12.6 - 17.0
Northwest	223	14.7	11.5 - 17.0
South Central	83	14.3	12.6 - 16.0
Central	92	15.1	13.3 - 17.0
North Central	38	15.2	12.6 - 16.6
Southeast	6	14.5	13.8 - 15.3
East Central	45	15.4	13.3 - 17.3
Northeast	234	15.0	12.3 - 16.8
NORTH DAKOTA, 1964	829*	15.0	11.5 - 17.3
NORTH DAKOTA, 1963	1,124	14.7	10.8 - 17.0
NORTH DAKOTA, 1962	1,159	14.2	10.7 - 18.4
NORTH DAKOTA, 1961	778	15.1	11.8 - 18.2

*Protein tests not available for all samples tested.

TEST WEIGHT

Test weight or average weight in pounds per bushel for the total sample was 58.1 pounds (Table 4). This was higher than the 1963 sample, but lower than either the 1962 or 1961 samples. The highest test weights occurred in the western part of the state where all three crop reporting districts had average weights of 59.2 pounds per bushel. This was also true of the 1963 sample when the West Central District had an average test weight of 58.7 pounds and the Northwest and Southwest Districts had weights of 58.6 and 58.1 pounds per bushel, respectively.

The highest county test weight average was found in McKenzie County with an average of 60.3 pounds per bushel (Appendix Tables B-1 through B-3). The lowest average test weight was 56.5 pounds per bushel in McHenry County. About 64 per cent of the total sample weighed pounds per bushel or greater, while about 51 per cent fell within this category in 1963. Appendix Tables B-24, 25, and 26 indicate that even though test weight was still the major determinant of grade, this factor did not act as the major determinant of grade as often as in the 1963 crop survey. For the 1964 crop, test weight was the determinant from 44.9 per cent in the East Central crop reporting district to 100.0 per cent of the time in the Southeast District. The 1963 crop survey indicated that test weight was the major determinant 92.3 to 98.9 per cent of the time in the East Central and West Central Districts, respectively.

TABLE 4. AVERAGE AND RANGE OF BUSHEL WEIGHTS OF CARLOT SAMPLES OF HARD RED SPRING WHEAT SHIPMENTS, BY CROP REPORTING DISTRICT, AND STATE TOTALS FOR 1964, 1963, 1962, AND 1961

Crop Reporting District	Total Number of Shipments	Bushel Weight, Pounds	
		Average	Range
Southwest	39	59.2	56.1 - 61.6
West Central	69	59.2	55.2 - 62.5
Northwest	223	59.2	53.3 - 62.8
South Central	83	57.9	54.5 - 60.2
Central	94	58.0	53.7 - 61.0
North Central	39	56.8	53.0 - 59.5
Southeast	6	57.4	55.5 - 58.7
East Central	49	58.2	52.0 - 60.5
Northeast	234	57.8	52.2 - 61.0
NORTH DAKOTA, 1964	836	58.1	52.0 - 62.8
NORTH DAKOTA, 1963	1,124	57.7	51.1 - 63.0
NORTH DAKOTA, 1962	1,159	59.3	51.2 - 63.2
NORTH DAKOTA, 1961	778	59.1	52.9 - 62.0

MOISTURE CONTENT

The average moisture content for the total sample was 11.5 per cent, which was slightly higher than the 1963 and 1961 crop surveys, but lower than the 1962 crop survey (Table 5). The highest average appeared in the Northeast District, while the lowest average appeared in the Southwest District. The western part of the state consistently had the lowest moisture content.

Information from the appendix indicates that samples from Steele County had the highest average, 13.3 per cent moisture, while the lowest appeared in the samples from Grant County where the average was 10.3 per cent (Appendix Tables B-1 through B-3). Approximately 19.3 per cent of the samples fell within the 11.0 to 11.4 per cent moisture category, while about 19.0 per cent fell within the 11.5 to 11.9 per cent category. Approximately 67 per cent of the total sample was below 12 per cent moisture. About 73 per cent of the 1963 crop survey sample fell below this moisture level.

TABLE 5. AVERAGE AND RANGE OF MOISTURE CONTENT OF CARLOT SAMPLES OF HARD RED SPRING WHEAT SHIPMENTS, BY CROP REPORTING DISTRICT, AND STATE TOTALS FOR 1964, 1963, 1962, AND 1961

Crop Reporting District	Total Number of Shipments	Moisture Content, Per Cent	
		Average	Range
Southwest	38	10.5	8.8 - 12.7
West Central	69	11.0	9.2 - 12.4
Northwest	223	11.2	9.0 - 14.3
South Central	83	11.3	9.6 - 13.5
Central	94	11.8	9.7 - 14.0
North Central	39	11.9	10.0 - 15.6
Southeast	6	11.4	10.7 - 11.8
East Central	49	11.5	9.6 - 14.4
Northeast	234	12.1	10.0 - 14.5
NORTH DAKOTA, 1964	835	11.5	8.8 - 15.6
NORTH DAKOTA, 1963	1,124	11.4	8.7 - 14.5
NORTH DAKOTA, 1962	1,159	12.1	9.5 - 16.4
NORTH DAKOTA, 1961	778	11.2	9.1 - 13.9

DOCKAGE

Approximately 80 per cent of the total samples of the 1964 crop measured one per cent dockage or less (Appendix Table B-23). The 1963 crop survey sample indicated that about 92.5 per cent measured one per cent dockage or less.[5] Approximately 39 per cent of the samples measuring one per cent dockage or less originated in the western part of the state, while about 38 per cent originated in the eastern part of the state. The remainder came from the central part of the state. The Northeast District originated about 31 per cent of the total amount having one per cent or less dockage, while the Northwest District shipped about 25 per cent of this amount.

GRADING FACTORS

The grading factors to be considered here include: total kernel damage, foreign material, shrunken and broken kernels, contrasting classes, and total defects. Under the grade standards system these are the major components of the grade determination (Appendix Table A-1). Of the 783 carloads grading No. 1 DNS or less, 29.4 per cent or 230 carloads had the initial grade determined by one or more of the particular grading factors (Table 6).

The impact of the various grading factors is rather evenly distributed. Considering all the grading factors (test weight included), 9.6 per cent of the total sample had its grade determined by the level of shrunken and broken kernels, while 6.6 per cent was determined by foreign material, 6.3 per cent by total defects, and 4.9 per cent by total damage. Considering the grading factors other than test weight, about 35 per cent of the samples which were initially determined by one of these factors were determined by shrunken and broken kernels, about 24 per cent by foreign material, 23 per cent by total defects, and about 18 per cent by total damage. Contrasting classes as a grading factor determinant played a very small role in initial grade determination.

More detailed information is available in the several appendix tables. Each of the grading factors is analyzed separately by grade and by origin.

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[5]The survey of the 1963 crop shipments included in the statistical analysis inspection reports which showed zero dockage. The statistical analysis of the 1964 crop shipments included only those inspection reports which indicated some level of dockage. Justification for using the latter method is that it is not realistic to assume that a carload of wheat does not contain some dockage factors.

TABLE 6. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES DETERMINING THE GRADE BY VARIOUS GRADING FACTORS FOR THE TOTAL CARLOT SAMPLE OF HARD RED SPRING WHEAT LEAVING NORTH DAKOTA ORIGINS BY GRADE, JULY THROUGH DECEMBER, 1964

Grade and Percentage Distribution	Not Applicable	Grading Factors					TOTAL DEFECTS	Number of Samples
		Test Weight	Total Damage	Foreign Material	Contrasting Classes	Shrunken and Broken		
No. 1 Heavy DNS	53	-	-	-	-	-	-	53
Per Cent	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
No. 1 DNS	-	292	-	-	-	-	-	292
Per Cent	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
No. 2 Heavy DNS	-	2	-	7	-	3	6	18
Per Cent	0.0	11.1	0.0	38.9	0.0	16.7	33.3	100.0
No. 2 DNS	-	111	8	39	-	71	25	254
Per Cent	0.0	43.7	3.2	15.4	0.0	27.9	9.8	100.0
No. 3 Heavy DNS	-	-	1	-	-	-	-	1
Per Cent	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
No. 3 DNS	-	116	14	5	-	5	14	154
Per Cent	0.0	75.4	9.1	3.2	0.0	3.2	9.1	100.0
No. 4 DNS	-	30	12	2	1	-	6	51
Per Cent	0.0	58.8	23.5	3.9	2.0	0.0	11.8	100.0
No. 5 DNS	-	-	6	-	-	-	1	7
Per Cent	0.0	0.0	85.7	0.0	0.0	0.0	14.3	100.0
S. G. DNS	-	-	-	2	-	-	1	3
Per Cent	0.0	0.0	0.0	66.7	0.0	0.0	33.3	100.0
No. 2 Heavy NS	-	-	-	-	-	1	-	1
Per Cent	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0
No. 1 NS	-	1	-	-	-	-	-	1
Per Cent	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
No. 3 NS	-	1	-	-	-	-	-	1
Per Cent	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
ALL GRADES	53	553	41	55	1	80	53	836
Per Cent	6.3	66.2	4.9	6.6	0.1	9.6	6.3	100.0

APPENDIX A

OFFICIAL GRADE STANDARDS FOR HARD RED SPRING WHEAT

TABLE A-1. MAXIMUM FACTOR ALLOWANCES FOR HARD RED SPRING WHEAT GRADES

Grade	Minimum Test Weight Per Bushel	Maximum Limits of						
		Defects					Wheat of Other Classes	
		Heat-Damaged Kernels	TOTAL Damaged Kernels	Foreign Material	Shrunken and Broken Kernels	TOTAL Defects	Contrasting Classes	TOTAL
	pounds	per cent						
1	58.0	0.1	2.0	0.5	3.0	3.0	0.5	3.0
2	57.0	0.2	4.0	1.0	5.0	5.0	1.0	5.0
3	55.0	0.5	7.0	2.0	8.0	8.0	2.0	10.0
4	53.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
5	50.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0
Sample Grade --	Sample grade shall be wheat which does not meet the requirements for any of the grades from No. 1 to No. 5, inclusive; or which contains stones; or which is musty, sour, or heating; or which has any commercially objectionable foreign odor, except of smut or garlic; or which contains a quantity of smut so great that any one or more of the grade requirements cannot be applied accurately; or which is otherwise of distinctly low quality.							

APPENDIX B

DETAILED INFORMATION FROM THE 1964 CROP SURVEY SAMPLE

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TABLE B-1. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENT, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN WESTERN NORTH DAKOTA, BY COUNTY AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District and County	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		Number of Protein Samples	TOTAL Number of Samples
	Average	Range	Average	Range	Average	Range		
Adams	----	---- ----	----	---- ----	----	---- ----	--	--
Billings	----	---- ----	----	---- ----	----	---- ----	--	--
Bowman	----	---- ----	----	---- ----	----	---- ----	--	--
Golden Valley	15.9	15.2 - 17.1	58.4	58.2 - 60.5	10.9	10.2 - 12.0	4	4
Hettinger	15.2	14.8 - 15.4	58.3	56.1 - 60.7	11.3	10.2 - 12.0	3	3
Slope	----	---- ----	----	---- ----	----	---- ----	--	--
Stark	15.3	13.4 - 17.0	59.4	56.5 - 61.6	10.5	8.8 - 12.7	32	32
SOUTHWEST	15.4	13.4 - 17.1	59.2	56.1 - 61.6	10.6	8.8 - 12.7	39	39
Dunn	14.7	13.8 - 15.7	59.3	58.0 - 60.7	10.9	9.6 - 12.2	9	9
McKenzie	15.0	12.6 - 17.1	60.3	58.8 - 62.5	10.7	9.2 - 11.6	22	22
McLean	15.0	14.2 - 16.0	57.8	55.2 - 59.1	11.3	10.0 - 12.3	10	10
Mercer	14.4	12.8 - 15.5	58.8	57.2 - 62.0	11.2	9.3 - 12.4	25	25
Oliver	13.9	13.8 - 14.0	58.7	58.0 - 59.1	10.3	9.5 - 11.0	3	3
WEST CENTRAL	14.7	12.6 - 17.0	59.2	55.2 - 62.5	11.0	9.2 - 12.4	69	69
Burke	13.7	11.5 - 16.0	58.8	53.3 - 61.2	11.3	10.3 - 12.6	23	23
Divide	15.1	12.8 - 16.2	58.4	55.5 - 60.4	11.0	10.3 - 11.7	18	18
Mountrail	14.6	12.8 - 16.1	59.2	57.0 - 61.0	11.5	10.0 - 12.9	24	24
Renville	14.8	12.7 - 15.8	58.5	54.0 - 62.2	12.0	10.2 - 14.3	27	27
Ward	14.1	12.6 - 16.3	59.3	57.0 - 62.8	11.3	10.2 - 13.0	51	51
Williams	15.3	12.5 - 17.0	59.7	55.5 - 61.3	10.8	9.0 - 13.0	80	80
NORTHWEST	14.7	11.5 - 17.0	59.2	53.3 - 62.8	11.2	9.0 - 14.3	223	223

TABLE B-2. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENT, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN CENTRAL NORTH DAKOTA, BY COUNTY AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District and County	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		Number of Protein Samples	TOTAL Number of Samples
	Average	Range	Average	Range	Average	Range		
Burleigh	14.6	13.5 - 15.7	57.6	56.0 - 59.3	11.2	9.9 - 12.5	17	17
Emmons	13.4	12.9 - 14.1	57.4	56.0 - 60.0	12.1	11.2 - 12.8	19	19
Grant	15.0	14.6 - 16.0	57.5	56.5 - 58.0	10.3	9.8 - 11.2	4	4
Morton	14.5	13.3 - 16.0	58.3	55.1 - 60.2	11.0	9.6 - 12.6	41	41
Sioux	14.0	14.0 - 14.0	56.9	54.5 - 59.2	12.0	10.9 - 13.0	2	2
SOUTH CENTRAL	14.3	12.9 - 16.0	57.9	54.5 - 60.2	11.3	9.6 - 13.0	83	83
Eddy	15.2	14.5 - 15.6	55.3	54.3 - 56.2	11.9	11.3 - 12.3	3	3
Foster	15.8	15.2 - 16.4	56.1	54.5 - 58.7	12.4	11.2 - 13.0	3	3
Kidder	14.5	13.5 - 16.5	56.4	55.5 - 60.1	12.2	10.3 - 13.0	14	15
Sheridan	15.0	13.7 - 16.4	58.4	55.2 - 61.0	11.1	10.4 - 12.4	15	15
Stutsman	15.4	13.3 - 17.0	58.6	54.3 - 60.5	11.8	9.7 - 14.0	50	51
Wells	15.1	14.5 - 16.0	57.5	55.6 - 59.6	11.7	11.0 - 12.4	7	7
CENTRAL	15.1	13.3 - 17.0	58.0	54.3 - 61.0	11.8	9.7 - 14.0	92	94
Benson	15.3	13.3 - 16.6	57.3	54.1 - 59.5	11.8	10.8 - 13.3	9	9
Bottineau	15.1	13.7 - 15.8	57.6	55.5 - 59.5	12.4	10.7 - 14.2	11	11
McHenry	15.3	15.0 - 15.9	56.5	54.0 - 58.2	11.4	10.0 - 13.1	8	8
Pierce	15.3	14.6 - 16.0	55.5	53.0 - 58.0	11.4	10.6 - 12.0	8	9
Rolette	13.8	12.6 - 15.1	57.6	57.0 - 58.2	13.7	11.8 - 15.6	2	2
NORTH CENTRAL	15.2	12.6 - 16.6	56.8	53.0 - 59.5	11.9	10.0 - 15.6	38	39

TABLE B-3. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENT, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN EASTERN NORTH DAKOTA, BY COUNTY AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District and County	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		Number of Protein Samples	TOTAL Number of Samples
	Average	Range	Average	Range	Average	Range		
Barnes	15.8	13.3 - 17.3	58.1	52.0 - 60.5	10.9	10.2 - 12.4	8	9
Cass	15.3	13.6 - 17.2	57.7	54.0 - 60.0	11.5	9.6 - 13.1	10	12
Griggs	----	---- ----	60.0	---- ----	11.2	---- ----	--	1
Steele	15.5	15.2 - 16.0	56.9	56.3 - 57.6	13.3	11.8 - 14.4	4	4
Traill	15.3	13.7 - 16.8	58.7	55.8 - 60.5	11.5	10.6 - 12.8	23	23
EAST CENTRAL	15.4	13.3 - 17.3	58.2	52.0 - 60.5	11.5	9.6 - 14.4	45	49
Cavalier	15.0	13.6 - 16.7	56.2	54.0 - 59.6	12.7	10.8 - 14.5	25	25
Grand Forks	15.0	13.0 - 16.6	58.4	54.0 - 60.5	11.7	10.0 - 13.5	67	67
Nelson	15.1	13.7 - 16.5	58.0	55.5 - 60.2	11.6	10.7 - 13.5	9	9
Pembina	14.9	13.0 - 16.8	57.1	52.2 - 60.5	12.6	10.3 - 14.5	81	81
Ramsey	15.3	14.3 - 16.1	57.0	56.5 - 57.5	12.6	11.3 - 13.5	4	4
Towner	----	---- ----	----	---- ----	----	---- ----	--	--
Walsh	15.2	12.3 - 16.2	59.1	57.0 - 61.0	11.7	10.6 - 13.8	48	48
NORTHEAST	15.0	12.3 - 16.8	57.8	52.2 - 61.0	12.1	10.0 - 14.5	234	234
Richland	14.5	13.8 - 15.3	57.4	55.7 - 58.7	11.4	10.7 - 11.8	6	6
SOUTHEAST	14.5	13.8 - 15.3	57.4	55.7 - 58.7	11.4	10.7 - 11.8	6	6

TABLE B-4. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENT, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN WESTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		No. of Samples
	Average	Range	Average	Range	Average	Range	
SOUTHWEST DISTRICT							
1 Heavy DNS	15.5	14.6 - 17.0	60.3	60.0 - 60.7	10.4	8.8 - 12.0	7
1 DNS	15.2	14.4 - 16.1	59.1	58.2 - 59.7	10.4	9.2 - 12.5	7
2 Heavy DNS	14.7	13.4 - 16.0	60.3	60.0 - 61.6	10.6	10.2 - 11.7	7
2 DNS	15.6	15.3 - 17.1	58.8	58.0 - 59.5	10.5	9.4 - 12.0	12
3 DNS	15.4	14.8 - 16.0	57.2	56.1 - 59.7	11.5	9.6 - 12.7	4
Sample Grade	15.8	---- ----	58.7	---- ----	10.2	---- ----	1
2 HNS	14.7	---- ----	60.0	---- ----	----	---- ----	1
ALL GRADES	15.4	13.4 - 17.1	59.2	56.1 - 61.6	10.5	8.8 - 12.7	39
WEST CENTRAL DISTRICT							
1 Heavy DNS	14.1	13.0 - 15.0	59.8	52.0 - 62.5	10.6	9.3 - 11.6	8
1 DNS	14.6	12.6 - 16.3	59.3	58.0 - 61.8	11.0	9.5 - 12.2	37
2 Heavy DNS	15.0	---- ----	61.3	---- ----	11.0	---- ----	1
2 DNS	15.3	13.8 - 17.1	59.1	57.2 - 61.5	11.0	9.2 - 12.0	16
3 DNS	14.4	12.8 - 15.4	57.9	55.2 - 59.8	11.6	11.0 - 12.4	7
ALL GRADES	14.7	12.6 - 17.1	59.2	55.2 - 62.5	11.0	9.2 - 12.4	69
NORTHWEST DISTRICT							
1 DNS	14.7	12.2 - 16.5	59.7	58.0 - 62.2	11.3	9.6 - 14.3	126
2 Heavy DNS	15.0	---- ----	59.5	---- ----	11.3	---- ----	1
2 DNS	14.8	11.5 - 16.5	58.5	57.7 - 62.8	11.0	9.1 - 13.4	74
3 DNS	15.2	14.2 - 17.0	56.9	55.5 - 59.7	11.2	9.0 - 12.8	16
4 DNS	15.2	14.2 - 15.8	54.8	53.3 - 58.7	11.6	10.7 - 12.3	5
3 NS	14.5	---- ----	55.5	---- ----	11.1	---- ----	1
ALL GRADES	14.7	11.5 - 17.0	59.2	53.3 - 62.8	11.2	9.0 - 14.3	223

TABLE B-5. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENT, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN CENTRAL NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		No. of Samples
	Average	Range	Average	Range	Average	Range	
SOUTH CENTRAL DISTRICT							
1 Heavy DNS	13.7	12.8 - 15.4	60.1	60.0 - 60.2	11.5	9.6 - 12.7	4
1 DNS	14.2	13.0 - 15.7	58.7	58.0 - 59.5	11.1	9.9 - 12.5	22
2 Heavy DNS	14.8	14.2 - 15.4	59.3	58.6 - 60.0	10.6	10.5 - 10.7	2
2 DNS	14.2	12.6 - 15.4	57.9	57.0 - 59.5	11.2	9.8 - 12.6	38
3 DNS	14.4	12.9 - 16.0	56.3	55.1 - 57.7	11.8	10.0 - 13.5	14
4 DNS	15.0	14.0 - 16.0	54.6	54.5 - 54.7	11.3	10.5 - 12.6	3
ALL GRADES	14.3	12.6 - 16.0	55.5	54.5 - 60.2	11.3	9.6 - 13.5	83
CENTRAL DISTRICT							
1 Heavy DNS	14.6	13.6 - 16.4	60.3	60.0 - 61.0	11.2	10.4 - 12.3	4
1 DNS	15.3	13.7 - 16.8	58.6	58.0 - 60.0	11.5	9.7 - 13.0	16
2 Heavy DNS	13.4	13.3 - 13.5	60.3	60.0 - 60.5	12.2	12.0 - 12.3	2
2 DNS	15.3	14.1 - 16.5	57.7	57.0 - 60.2	11.5	10.4 - 12.6	28
3 DNS	14.9	14.0 - 16.2	56.2	55.2 - 58.0	11.8	10.3 - 13.4	28
4 DNS	15.6	13.5 - 17.0	55.0	53.7 - 58.3	12.7	11.4 - 14.0	12
5 DNS	15.7	15.0 - 16.4	54.8	54.6 - 55.0	12.6	12.2 - 13.0	2
Sample Grade	15.4	15.0 - 15.8	54.9	54.5 - 55.2	12.7	12.4 - 12.9	2
ALL GRADES	15.1	13.3 - 17.0	58.0	53.7 - 61.0	11.8	9.7 - 14.0	94
NORTH CENTRAL DISTRICT							
1 DNS	15.1	14.7 - 16.6	58.7	58.0 - 59.5	12.3	10.2 - 13.4	11
2 DNS	15.0	12.6 - 16.0	57.7	57.0 - 59.0	11.7	10.0 - 15.6	12
3 DNS	15.2	13.7 - 15.8	56.0	55.0 - 56.6	12.0	10.7 - 14.2	7
4 DNS	15.6	15.0 - 16.5	54.0	53.0 - 54.5	11.9	10.8 - 15.1	9
ALL GRADES	15.2	12.6 - 16.6	56.8	53.0 - 59.5	11.9	10.0 - 15.6	39

TABLE B-6. AVERAGE VALUES AND RANGES FOR PROTEIN CONTENTS, BUSHEL WEIGHT, AND MOISTURE OF CARLOT SAMPLES OF HARD RED SPRING WHEAT IN EASTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Protein Content, %		Bushel Weight, lb.		Moisture Content, %		No. of Samples
	Average	Range	Average	Range	Average	Range	
EAST CENTRAL DISTRICT							
1 Heavy DNS	15.9	14.8 - 16.9	60.3	60.0 - 60.5	11.1	10.9 - 11.2	2
1 DNS	15.4	13.3 - 17.3	59.0	58.2 - 59.7	11.4	9.6 - 12.8	13
2 Heavy DNS	13.7	---- ----	60.1	60.0 - 60.2	11.3	11.2 - 11.4	2
2 DNS	14.4	13.6 - 16.7	58.6	57.0 - 59.6	11.1	10.2 - 13.1	16
3 DNS	15.6	15.3 - 16.1	57.4	56.5 - 58.5	11.8	10.8 - 12.8	9
4 DNS	15.3	14.0 - 16.3	55.8	54.0 - 57.1	12.5	10.7 - 14.4	5
5 DNS	15.8	15.6 - 16.0	54.2	52.0 - 56.5	13.0	12.4 - 13.5	2
ALL GRADES	15.4	13.3 - 17.3	58.2	52.0 - 60.5	11.5	9.6 - 14.4	49
NORTHEAST DISTRICT							
1 Heavy DNS	15.3	12.3 - 16.5	60.2	60.0 - 61.0	11.4	10.3 - 12.0	28
1 DNS	14.8	13.0 - 16.7	58.9	58.0 - 59.7	11.7	10.0 - 13.3	58
2 Heavy DNS	15.4	14.5 - 16.1	60.0	60.0 - 60.0	11.3	11.0 - 11.7	3
2 DNS	15.0	13.3 - 16.4	57.7	56.5 - 59.5	12.1	10.4 - 14.5	55
3 Heavy DNS	13.0	---- ----	60.5	---- ----	12.1	---- ----	1
3 DNS	15.0	13.5 - 16.5	56.4	52.2 - 59.0	12.8	10.7 - 14.1	68
4 DNS	16.3	14.5 - 16.8	59.2	54.0 - 57.2	12.8	11.5 - 14.1	17
5 DNS	15.6	15.3 - 15.8	55.0	54.0 - 56.5	13.1	13.0 - 13.2	3
1 NS	16.2	---- ----	60.0	---- ----	10.6	---- ----	1
ALL GRADES	15.0	12.3 - 16.8	57.8	52.2 - 61.0	12.1	10.0 - 14.5	234
SOUTHEAST DISTRICT (Richland County only)							
1 DNS	13.8	13.8 - 13.8	58.4	58.0 - 58.7	10.9	10.7 - 11.0	2
2 DNS	14.7	14.4 - 14.9	59.3	57.1 - 57.5	11.7	11.5 - 11.8	3
3 DNS	15.3	---- ----	55.7	---- ----	11.6	---- ----	1
ALL GRADES	14.5	13.8 - 14.9	57.4	57.1 - 58.7	11.4	10.7 - 11.8	6

TABLE B-7. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT PROTEIN RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Protein Range, Per Cent												
	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	16.0 to 16.4	16.5 to 16.9	17.0 to 17.4	TOTAL
Southwest	--	--	--	1	--	2	7	13	8	6	--	2	39
West Central	--	--	3	2	8	14	15	14	5	5	2	1	69
Northwest	1	2	12	10	18	29	40	53	35	19	3	1	223
South Central	--	--	3	9	13	24	15	15	2	2	--	--	83
Central	--	--	--	1	5	11	17	23	14	16	4	1	92
North Central	--	--	1	2	1	--	6	15	10	1	2	--	38
Southeast	--	--	--	--	2	1	2	1	--	--	--	--	6
East Central	--	--	--	1	3	4	4	8	13	6	4	2	45
Northeast	--	1	--	6	12	31	56	50	43	27	8	--	234
TOTAL	1	3	19	32	62	116	162	192	130	82	23	7	829
Percentage Distribution	0.1	0.4	2.3	3.9	7.4	14.0	19.5	23.2	15.7	9.9	2.8	0.8	100.0

TABLE B-8. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT PROTEIN RANGES IN WESTERN NORTH DAKOTA, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	16.0 to 16.4	16.5 to 16.9	17.0 to 17.4	17.5 to 17.9	TOTAL
SOUTHWEST DISTRICT																
	Protein Range, Per Cent															
1 Heavy DNS	--	--	--	--	--	--	--	--	2	3	1	--	--	1	--	7
1 DNS	--	--	--	--	--	--	--	1	1	2	2	1	--	--	--	7
2 Heavy DNS	--	--	--	--	--	1	--	1	2	2	--	1	--	--	--	7
2 DNS	--	--	--	--	--	--	--	--	--	5	3	3	--	1	--	12
3 DNS	--	--	--	--	--	--	--	--	1	1	1	1	--	--	--	4
S. G. DNS	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1
2 HNS	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1
TOTAL	--	--	--	--	--	1	--	2	7	13	8	6	--	2	--	39
WEST CENTRAL DISTRICT																
1 Heavy DNS	--	--	--	--	--	1	2	2	1	2	--	--	--	--	--	8
1 DNS	--	--	--	--	2	1	4	9	10	4	3	3	1	--	--	37
2 Heavy DNS	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1
2 DNS	--	--	--	--	--	--	1	1	4	4	2	2	1	1	--	16
3 DNS	--	--	--	--	1	--	1	2	--	3	--	--	--	--	--	7
TOTAL	--	--	--	--	3	2	8	14	15	14	5	5	2	1	--	69
NORTHWEST DISTRICT																
1 DNS	--	--	--	1	7	5	16	19	21	30	18	8	1	--	--	126
2 Heavy DNS	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1
2 DNS	--	--	1	1	5	5	2	8	12	16	13	10	1	--	--	74
3 DNS	--	--	--	--	--	--	--	2	5	4	2	1	1	1	--	16
4 DNS	--	--	--	--	--	--	--	--	1	2	2	--	--	--	--	5
3 NS	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1
TOTAL	--	--	1	2	12	10	18	29	40	53	35	19	3	1	--	223

TABLE B-9. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT PROTEIN RANGES IN CENTRAL NORTH DAKOTA, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	16.0 to 16.4	16.5 to 16.9	17.0 to 17.4	17.5 to 17.9	TOTAL
SOUTH CENTRAL DISTRICT																
	Protein Range, Per Cent															
1 Heavy DNS	--	--	--	--	1	2	--	--	--	1	--	--	--	--	--	4
1 DNS	--	--	--	--	--	1	4	10	4	2	1	--	--	--	--	22
2 Heavy DNS	--	--	--	--	--	--	--	1	--	1	--	--	--	--	--	2
2 DNS	--	--	--	--	1	6	4	10	11	6	--	--	--	--	--	38
3 DNS	--	--	--	--	1	--	5	2	--	4	1	1	--	--	--	14
4 DNS	--	--	--	--	--	--	--	1	--	1	--	1	--	--	--	3
TOTAL	--	--	--	--	3	9	13	24	15	15	2	2	--	--	--	83
CENTRAL DISTRICT																
1 Heavy DNS	--	--	--	--	--	--	2	--	1	--	--	1	--	--	--	4
1 DNS	--	--	--	--	--	--	1	1	4	2	4	3	1	--	--	16
2 Heavy DNS	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	2
2 DNS	--	--	--	--	--	--	--	3	7	7	2	7	2	--	--	28
3 DNS	--	--	--	--	--	--	--	6	5	11	4	1	--	--	--	27
4 DNS	--	--	--	--	--	--	1	1	--	1	3	3	1	1	--	11
5 DNS	--	--	--	--	--	--	--	--	--	1	--	1	--	--	--	2
S. G. DNS	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--	2
TOTAL	--	--	--	--	--	1	5	11	17	23	14	16	4	1	--	92
NORTH CENTRAL DISTRICT																
1 DNS	--	--	--	--	--	1	--	--	3	4	2	--	1	--	--	11
2 DNS	--	--	--	--	1	1	--	--	3	4	2	1	--	--	--	12
3 DNS	--	--	--	--	--	--	1	--	--	3	3	--	--	--	--	7
4 DNS	--	--	--	--	--	--	--	--	--	4	3	--	1	--	--	8
TOTAL	--	--	--	--	1	2	1	--	6	15	10	1	2	--	--	38

TABLE B-10. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT PROTEIN RANGES IN EASTERN NORTH DAKOTA, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	16.0 to 16.4	16.5 to 16.9	17.0 to 17.4	17.5 to 17.9	TOTAL
SOUTHEAST DISTRICT																
	Protein Range, Per Cent															
1 DNS	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	2
2 DNS	--	--	--	--	--	--	--	1	2	--	--	--	--	--	--	3
3 DNS	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1
TOTAL	--	--	--	--	--	--	2	1	2	1	--	--	--	--	--	6
EAST CENTRAL DISTRICT																
1 Heavy DNS	--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	2
1 DNS	--	--	--	--	--	1	1	1	1	3	2	1	1	2	--	13
2 Heavy DNS	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1
2 DNS	--	--	--	--	--	--	1	2	2	1	6	1	2	--	--	15
3 DNS	--	--	--	--	--	--	--	--	--	2	3	2	--	--	--	7
4 DNS	--	--	--	--	--	--	--	1	--	2	1	1	--	--	--	5
5 DNS	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2
TOTAL	--	--	--	--	--	1	3	4	4	8	13	6	4	2	--	45
NORTHEAST DISTRICT																
1 Heavy DNS	--	--	--	1	--	--	--	3	3	8	5	6	2	--	--	28
1 DNS	--	--	--	--	--	4	4	13	15	6	10	4	2	--	--	58
2 Heavy DNS	--	--	--	--	--	--	--	--	-1	--	1	1	--	--	--	3
2 DNS	--	--	--	--	--	1	4	9	8	16	8	9	--	--	--	55
3 Heavy DNS	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1
3 DNS	--	--	--	--	--	--	4	6	22	17	10	7	2	--	--	68
4 DNS	--	--	--	--	--	--	--	--	7	2	6	--	2	--	--	17
5 DNS	--	--	--	--	--	--	--	--	--	1	2	--	--	--	--	3
1 NS	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1
TOTAL	--	--	--	1	--	6	12	31	56	50	43	27	8	--	--	234

TABLE B-11. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE POUND BUSHEL WEIGHT RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Bushel Weight, lb.											TOTAL
	52	53	54	55	56	57	58	59	60	61	62	
Southwest	--	--	--	--	3	--	9	13	13	1	--	39
West Central	--	--	--	1	1	5	14	26	12	7	3	69
Northwest	--	2	2	3	10	11	45	52	81	13	4	223
South Central	--	--	3	2	11	24	18	20	5	--	--	83
Central	--	2	7	13	17	25	18	4	7	1	--	94
North Central	--	3	6	3	4	8	9	6	--	--	--	39
Southeast	--	--	--	1	--	3	2	--	--	--	--	6
East Central	1	--	1	2	4	10	11	15	5	--	--	49
Northeast	1	--	8	21	35	50	43	43	32	1	--	234
STATE TOTAL	2	7	27	46	85	136	169	179	155	23	7	836
Percentage Distribution	0.2	0.8	3.2	5.5	10.3	16.3	20.2	21.4	18.5	2.8	0.8	100.0

TABLE B-12. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE POUND BUSHEL WEIGHT RANGES IN WESTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Bushel Weight, lb.											TOTAL
	52	53	54	55	56	57	58	59	60	61	62	
SOUTHWEST DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	7	--	--	7
1 DNS	--	--	--	--	--	--	2	5	--	--	--	7
2 Heavy DNS	--	--	--	--	--	--	--	1	5	1	--	7
2 DNS	--	--	--	--	--	--	6	6	--	--	--	12
3 DNS	--	--	--	--	3	--	--	1	--	--	--	4
S. G. DNS	--	--	--	--	--	--	1	--	--	--	--	1
2 HNS	--	--	--	--	--	--	--	--	1	--	--	1
TOTAL	--	--	--	--	3	--	9	13	13	1	--	39
WEST CENTRAL DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	3	2	3	8
1 DNS	--	--	--	--	--	--	8	21	6	2	--	37
2 Heavy DNS	--	--	--	--	--	--	--	--	--	1	--	1
2 DNS	--	--	--	--	--	4	5	2	3	2	--	16
3 DNS	--	--	--	1	1	1	1	3	--	--	--	7
TOTAL	--	--	--	1	1	5	14	26	12	7	3	69
NORTHWEST DISTRICT												
1 DNS	--	--	--	--	--	--	24	30	59	10	3	126
2 Heavy DNS	--	--	--	--	--	--	--	1	--	--	--	1
2 DNS	--	--	--	--	--	11	19	18	22	3	1	74
3 DNS	--	--	--	2	10	--	1	3	--	--	--	16
4 DNS	--	2	2	--	--	--	1	--	--	--	--	5
3 NS	--	--	--	1	--	--	--	--	--	--	--	1
TOTAL	--	2	2	3	10	11	45	52	81	13	4	223

TABLE B-13. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE POUND BUSHEL WEIGHT RANGES IN CENTRAL NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Bushel Weight, lb.											TOTAL
	52	53	54	55	56	57	58	59	60	61	62	
SOUTH CENTRAL DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	4	--	--	4
1 DNS	--	--	--	--	--	--	11	11	--	--	--	22
2 Heavy DNS	--	--	--	--	--	--	1	--	1	--	--	2
2 DNS	--	--	--	--	--	23	6	9	--	--	--	38
3 DNS	--	--	--	2	11	1	--	--	--	--	--	14
4 DNS	--	--	3	--	--	--	--	--	--	--	--	3
TOTAL	--	--	3	2	11	24	18	20	5	--	--	83
CENTRAL DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	3	1	--	4
1 DNS	--	--	--	--	--	--	13	2	1	--	--	16
2 Heavy DNS	--	--	--	--	--	--	--	--	2	--	--	2
2 DNS	--	--	--	--	--	22	3	2	1	--	--	28
3 DNS	--	--	--	9	15	3	1	--	--	--	--	28
4 DNS	--	2	5	2	2	--	1	--	--	--	--	12
5 DNS	--	--	1	1	--	--	--	--	--	--	--	2
S. G. DNS	--	--	1	1	--	--	--	--	--	--	--	2
TOTAL	--	2	7	13	17	25	18	4	7	1	--	94
NORTH CENTRAL DISTRICT												
1 DNS	--	--	--	--	--	--	6	5	--	--	--	11
2 DNS	--	--	--	--	--	8	3	1	--	--	--	12
3 DNS	--	--	--	3	4	--	--	--	--	--	--	7
4 DNS	--	3	6	--	--	--	--	--	--	--	--	9
TOTAL	--	3	6	3	4	8	9	6	--	--	--	39

TABLE B-14. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE POUND BUSHEL WEIGHT RANGES IN EASTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Bushel Weight, lb. 52	53	54	55	56	57	58	59	60	61	62	TOTAL
SOUTHEAST DISTRICT												
1 DNS	--	--	--	--	--	--	2	--	--	--	--	2
2 DNS	--	--	--	--	--	3	--	--	--	--	--	3
3 DNS	--	--	--	1	--	--	--	--	--	--	--	1
TOTAL	--	--	--	1	--	3	2	--	--	--	--	6
EAST CENTRAL DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	2	--	--	2
1 DNS	--	--	--	--	--	--	5	8	--	--	--	13
2 Heavy DNS	--	--	--	--	--	--	--	--	2	--	--	2
2 DNS	--	--	--	--	--	5	3	7	1	--	--	16
3 DNS	--	--	--	1	1	4	3	--	--	--	--	9
4 DNS	--	--	1	1	2	1	--	--	--	--	--	5
5 DNS	1	--	--	--	1	--	--	--	--	--	--	2
TOTAL	1	--	1	2	4	10	11	15	5	--	--	49
NORTHEAST DISTRICT												
1 Heavy DNS	--	--	--	--	--	--	--	--	27	1	--	28
1 DNS	--	--	--	--	--	--	23	35	--	--	--	58
2 Heavy DNS	--	--	--	--	--	--	--	--	3	--	--	3
2 DNS	--	--	--	--	1	35	13	6	--	--	--	55
3 Heavy DNS	--	--	--	--	--	--	--	--	1	--	--	1
3 DNS	1	--	--	19	30	10	6	2	--	--	--	68
4 DNS	--	--	6	2	3	5	1	--	--	--	--	17
5 DNS	--	--	2	--	1	--	--	--	--	--	--	3
1 NS	--	--	--	--	--	--	--	--	1	--	--	1
TOTAL	1	--	8	21	35	50	43	43	32	1	--	234

TABLE B-15. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT MOISTURE CONTENT RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Moisture Range, Per Cent															TOTAL
	8.5 to 8.9	9.0 to 9.4	9.5 to 9.9	10.0 to 10.4	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	
Southwest	1	4	3	11	7	4	3	3	2	--	--	--	--	--	--	38
West Central	--	2	5	9	15	17	13	8	--	--	--	--	--	--	--	69
Northwest	--	3	15	19	57	48	48	15	6	9	2	1	--	--	--	223
South Central	--	--	7	13	11	13	15	13	9	1	1	--	--	--	--	83
Central	--	--	1	3	12	22	15	20	9	11	--	1	--	--	--	94
North Central	--	--	--	2	4	8	11	4	2	5	--	1	--	1	1	39
Southeast	--	--	--	--	1	1	4	--	--	--	--	--	--	--	--	6
East Central	--	--	1	4	8	15	8	4	5	1	2	1	--	--	--	49
Northeast	--	--	--	3	20	34	42	50	30	32	18	3	2	--	--	234
STATE TOTAL	1	9	32	64	135	162	159	117	63	59	23	7	2	1	1	835
Percentage Distribution	0.1	1.1	3.8	7.7	16.2	19.4	19.0	14.0	7.6	7.1	2.8	0.8	0.2	0.1	0.1	100.0

TABLE B-16. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT MOISTURE CONTENT RANGES IN WESTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Moisture Range, Per Cent															
	8.5 to 8.9	9.0 to 9.4	9.5 to 9.9	10.0 to 10.4	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	TOTAL
SOUTHWEST DISTRICT																
1 Heavy DNS	1	1	1	--	2	--	1	1	--	--	--	--	--	--	--	7
1 DNS	--	2	--	1	3	--	--	--	1	--	--	--	--	--	--	7
2 Heavy DNS	--	--	--	3	2	1	1	--	--	--	--	--	--	--	--	7
2 DNS	--	1	1	6	--	3	--	1	--	--	--	--	--	--	--	12
3 DNS	--	--	1	--	--	--	1	1	1	--	--	--	--	--	--	4
S. G. DNS	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1
2 HNS*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	1	4	3	11	7	4	3	3	2	--	--	--	--	--	--	38
WEST CENTRAL DISTRICT																
1 Heavy DNS	--	1	2	--	1	2	2	--	--	--	--	--	--	--	--	8
1 DNS	--	--	3	5	11	8	5	5	--	--	--	--	--	--	--	37
2 Heavy DNS	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1
2 DNS	--	1	--	4	3	2	5	1	--	--	--	--	--	--	--	16
3 DNS	--	--	--	--	--	4	1	2	--	--	--	--	--	--	--	7
TOTAL	--	2	5	9	15	17	13	8	--	--	--	--	--	--	--	69
NORTHWEST DISTRICT																
1 DNS	--	--	3	12	34	26	30	9	3	6	2	1	--	--	--	126
2 Heavy DNS	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1
2 DNS	--	2	12	7	17	15	12	4	2	3	--	--	--	--	--	74
3 DNS	--	1	--	--	5	5	3	1	1	--	--	--	--	--	--	16
4 DNS	--	--	--	--	1	--	3	1	--	--	--	--	--	--	--	5
3 NS	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1
TOTAL	--	3	15	19	57	48	48	15	6	9	2	1	--	--	--	223

*Only 38 samples available. None available for 2 HNS.

TABLE B-17. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT MOISTURE CONTENT RANGES IN CENTRAL NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	8.5 to 8.9	9.0 to 9.4	9.5 to 9.9	10.0 to 10.4	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	TOTAL
SOUTH CENTRAL DISTRICT																
	Moisture Range, Per Cent															
1 Heavy DNS	--	--	1	--	--	--	1	1	1	--	--	--	--	--	--	4
1 DNS	--	--	3	3	4	4	3	3	1	1	--	--	--	--	--	22
2 Heavy DNS	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	2
2 DNS	--	--	3	9	2	5	10	6	3	--	--	--	--	--	--	38
3 DNS	--	--	--	1	1	4	1	3	3	--	1	--	--	--	--	14
4 DNS	--	--	--	--	2	--	--	--	1	--	--	--	--	--	--	3
TOTAL	--	--	7	13	11	13	15	13	9	1	1	--	--	--	--	83
CENTRAL DISTRICT																
1 Heavy DNS	--	--	--	1	1	--	1	1	--	--	--	--	--	--	--	4
1 DNS	--	--	1	--	4	4	2	2	1	2	--	--	--	--	--	16
2 Heavy DNS	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	2
2 DNS	--	--	--	1	3	12	6	3	3	--	--	--	--	--	--	28
3 DNS	--	--	--	1	4	5	5	8	2	3	--	--	--	--	--	28
4 DNS	--	--	--	--	--	1	1	2	2	5	--	1	--	--	--	12
5 DNS	--	--	--	--	--	--	--	1	--	1	--	--	--	--	--	2
S. G. DNS	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	2
TOTAL	--	--	1	3	12	22	15	20	9	11	--	1	--	--	--	94
NORTH CENTRAL DISTRICT																
1 DNS	--	--	--	1	--	1	2	2	1	4	--	--	--	--	--	11
2 DNS	--	--	--	1	1	3	5	1	--	--	--	--	--	--	1	12
3 DNS	--	--	--	--	1	3	--	--	1	1	--	1	--	--	--	7
4 DNS	--	--	--	--	2	1	4	1	--	--	--	--	--	1	--	9
TOTAL	--	--	--	2	4	8	11	4	2	5	--	1	--	1	1	39

TABLE B-18. NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT MOISTURE CONTENT RANGES IN EASTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	8.5 to 8.9	9.0 to 9.4	9.5 to 9.9	10.0 to 10.4	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14.0 to 14.4	14.5 to 14.9	15.0 to 15.4	15.5 to 15.9	TOTAL
SOUTHEAST DISTRICT																
	Moisture Range, Per Cent															
1 DNS	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	2
2 DNS	--	--	--	--	--	--	3	--	--	--	--	--	--	--	--	3
3 DNS	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1
TOTAL	--	--	--	--	1	1	4	--	--	--	--	--	--	--	--	6
EAST CENTRAL DISTRICT																
1 Heavy DNS	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	2
1 DNS	--	--	1	1	2	3	2	2	2	--	--	--	--	--	--	13
2 Heavy DNS	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	2
2 DNS	--	--	--	3	3	7	2	--	--	1	--	--	--	--	--	16
3 DNS	--	--	--	--	1	2	3	--	3	--	--	--	--	--	--	9
4 DNS	--	--	--	--	1	--	1	1	--	--	1	1	--	--	--	5
5 DNS	--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	2
TOTAL	--	--	1	4	8	15	8	4	5	1	2	1	--	--	--	49
NORTHEAST DISTRICT																
1 Heavy DNS	--	--	--	1	7	8	9	2	--	1	--	--	--	--	--	28
1 DNS	--	--	--	1	8	12	16	13	5	3	--	--	--	--	--	58
2 Heavy DNS	--	--	--	--	--	2	1	--	--	--	--	--	--	--	--	3
2 DNS	--	--	--	1	3	10	10	15	5	4	5	--	2	--	--	55
3 Heavy DNS	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1
3 DNS	--	--	--	--	1	2	3	16	19	13	12	2	--	--	--	68
4 DNS	--	--	--	--	--	--	3	3	1	8	1	1	--	--	--	17
5 DNS	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	3
1 NS	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1
TOTAL	--	--	--	3	20	34	42	50	30	32	18	3	2	--	--	234

TABLE B-19. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE PER CENT DAMAGE RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Damage Range, Per Cent												
	Not Listed as a Grading Factor	0.0 to 0.9	1.0 to 1.9	2.0 to 2.9	3.0 to 3.9	4.0 to 4.9	5.0 to 5.9	6.0 to 6.9	7.0 to 7.9	8.0 to 8.9	9.0 to 9.9	10.0 to 10.9	11.0 and over	TOTAL
Southwest	35	3	1	--	--	--	--	--	--	--	--	--	--	39
West Central	66	2	--	--	--	1	--	--	--	--	--	--	--	69
Northwest	216	--	3	2	1	--	--	--	--	1	--	--	--	223
South Central	82	1	--	--	--	--	--	--	--	--	--	--	--	83
Central	65	7	8	4	1	2	--	2	1	1	2	--	1	94
North Central	31	3	2	2	1	--	--	--	--	--	--	--	--	39
Southeast	5	1	--	--	--	--	--	--	--	--	--	--	--	6
East Central	27	9	1	3	1	--	2	1	2	1	--	1	1	49
Northeast	148	9	6	16	15	15	7	5	5	4	--	2	2	234
STATE TOTAL	675	35	21	27	19	18	9	8	8	7	2	3	4	836
Percentage Distribution	80.7	4.2	2.5	3.2	2.3	2.1	1.1	1.0	1.0	0.8	0.2	0.4	0.5	100.0

TABLE B-20. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN 0.5 PER CENT FOREIGN MATERIAL RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Foreign Material Range, Per Cent														
	Not Listed as a Grading Factor	0.1 to 0.4	0.5 to 0.9	1.0 to 1.4	1.5 to 1.9	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	5.5 to 5.9	6.0 to 6.4	6.5 and over	TOTAL
Southwest	22	6	7	3	--	--	--	--	--	--	--	--	--	--	1	39
West Central	42	20	5	1	1	--	--	--	--	--	--	--	--	--	--	69
Northwest	181	14	26	2	--	--	--	--	--	--	--	--	--	--	--	223
South Central	41	19	21	1	--	1	--	--	--	--	--	--	--	--	--	83
Central	49	22	18	3	1	--	1	--	--	--	--	--	--	--	--	94
North Central	19	16	2	1	--	1	--	--	--	--	--	--	--	--	--	39
Southeast	5	1	--	--	--	--	--	--	--	--	--	--	--	--	--	6
East Central	16	17	11	1	1	1	1	1	--	--	--	--	--	--	--	49
Northeast	106	111	11	3	--	2	1	--	--	--	--	--	--	--	--	234
STATE TOTAL	481	226	101	15	3	5	3	1	--	--	--	--	--	--	1	836
Percentage Distribution	57.5	27.0	12.1	1.8	0.4	0.6	0.4	0.1	--	--	--	--	--	--	0.1	100.0

TABLE B-21. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE PER CENT RANGES OF WHEAT OF CONTRASTING CLASSES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Not Listed as a Grading Factor	Contrasting Classes Range, Per Cent											TOTAL
		0.0 to 0.9	1.0 to 1.9	2.0 to 2.9	3.0 to 3.9	4.0 to 4.9	5.0 to 5.9	6.0 to 6.9	7.0 to 7.9	8.0 to 8.9	9.0 to 9.9	10.0 to 10.9	
Southwest	39	--	--	--	--	--	--	--	--	--	--	--	39
West Central	69	--	--	--	--	--	--	--	--	--	--	--	69
Northwest	223	--	--	--	--	--	--	--	--	--	--	--	223
South Central	82	--	1	--	--	--	--	--	--	--	--	--	83
Central	92	--	1	1	--	--	--	--	--	--	--	--	94
North Central	38	1	--	--	--	--	--	--	--	--	--	--	39
Southeast	6	--	--	--	--	--	--	--	--	--	--	--	6
East Central	49	--	--	--	--	--	--	--	--	--	--	--	49
Northeast	232	--	1	1	--	--	--	--	--	--	--	--	234
STATE TOTAL	830	1	3	2	--	--	--	--	--	--	--	--	836
Percentage Distribution	99.3	0.1	0.4	0.2	--	--	--	--	--	--	--	--	100.0

TABLE B-22. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE PER CENT SHRUNKEN AND BROKEN RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Shrunken and Broken Range, Per Cent											
	Not Listed as a Grading Factor	0.0 to 0.9	1.0 to 1.9	2.0 to 2.9	3.0 to 3.9	4.0 to 4.9	5.0 to 5.9	6.0 to 6.9	7.0 to 7.9	8.0 to 8.9	9.0 to 9.9	10.0 to 10.9	TOTAL
Southwest	8	--	2	9	16	2	1	1	--	--	--	--	39
West Central	39	2	7	8	10	2	1	--	--	--	--	--	69
Northwest	155	--	5	18	35	8	1	1	--	--	--	--	223
South Central	31	1	12	20	16	3	--	--	--	--	--	--	83
Central	28	1	18	35	12	--	--	--	--	--	--	--	94
North Central	16	2	6	6	8	1	--	--	--	--	--	--	39
Southeast	5	--	--	1	--	--	--	--	--	--	--	--	6
East Central	16	2	7	15	6	1	2	--	--	--	--	--	49
Northeast	108	8	69	42	7	--	--	--	--	--	--	--	234
STATE TOTAL	406	16	126	154	110	17	5	2	--	--	--	--	836
Percentage Distribution	48.6	1.9	15.1	18.4	13.2	2.0	0.6	0.2	--	--	--	--	100.0

TABLE B-23. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT FALLING WITHIN ONE PER CENT DOCKAGE RANGES, BY CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Crop Reporting District	Dockage Range, Per Cent										
	Less Than 0.5 Per Cent	0.5 to 0.9	1.0 to 1.4	1.5 to 1.9	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 and over	TOTAL
Southwest	20	11	1	4	--	--	--	3	--	--	39
West Central	17	28	13	2	4	3	1	--	--	1	69
Northwest	33	91	44	17	11	13	7	3	3	1	223
South Central	21	33	9	3	2	4	3	4	2	2	83
Central	15	35	17	10	8	1	4	--	1	3	94
North Central	8	7	12	6	2	--	1	1	2	--	39
Southeast	--	1	--	2	3	--	--	--	--	--	6
East Central	14	24	5	3	2	1	--	--	--	--	49
Northeast	81	78	48	7	15	3	1	--	1	--	234
STATE TOTAL	209	308	149	54	47	25	17	11	9	7	836
Percentage Distribution	25.0	36.9	17.8	6.5	5.6	3.0	2.0	1.3	1.1	0.8	100.0

TABLE B-24. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT DETERMINING THE GRADE BY THE VARIOUS GRADING FACTORS IN WESTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Test Weight	Total Damage	Foreign Material	Contrasting Classes	Shrunken and Broken	Total Defects	TOTAL
SOUTHWEST DISTRICT							
No. 1 Heavy DNS	7	--	--	--	--	--	7
No. 1 DNS	7	--	--	--	--	--	7
No. 2 Heavy DNS	1	--	3	--	2	1	7
No. 2 DNS	--	--	1	--	11	--	12
No. 3 DNS	3	--	--	--	1	--	4
S. G. DNS	--	--	1	--	--	--	1
2 HNS	--	--	--	--	1	--	1
ALL GRADES	18	--	5	--	15	1	39
PER CENT	46.1	--	12.8	--	38.5	2.6	100.0
WEST CENTRAL DISTRICT							
No. 1 Heavy DNS	8	--	--	--	--	--	8
No. 1 DNS	37	--	--	--	--	--	37
No. 2 Heavy DNS	--	--	--	--	--	1	1
No. 2 DNS	4	--	1	--	10	2	16
No. 3 DNS	2	--	1	--	--	3	7
ALL GRADES	51	--	2	--	10	6	69
PER CENT	73.9	--	2.9	--	14.5	8.7	100.0
NORTHWEST DISTRICT							
No. 1 DNS	126	--	--	--	--	--	126
No. 2 Heavy DNS	--	--	--	--	--	1	1
No. 2 DNS	11	--	26	--	32	5	74
No. 3 DNS	12	--	1	--	3	--	16
No. 4 DNS	4	1	--	--	--	--	5
No. 3 NS	1	--	--	--	--	--	1
ALL GRADES	154	1	27	--	35	6	223
PER CENT	69.1	0.4	12.1	--	15.7	2.7	100.0

TABLE B-25. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT DETERMINING THE GRADE BY THE VARIOUS GRADING FACTORS IN CENTRAL NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Test Weight	Total Damage	Foreign Material	Contrasting Classes	Shrunken and Broken	Total Defects	TOTAL
			SOUTH CENTRAL DISTRICT				
No. 1 Heavy DNS	4	--	--	--	--	--	4
No. 1 DNS	22	--	--	--	--	--	22
No. 2 Heavy DNS	1	--	1	--	--	--	2
No. 2 DNS	23	--	7	--	5	3	38
No. 3 DNS	14	--	--	--	--	--	14
No. 4 DNS	3	--	--	--	--	--	3
ALL GRADES	67	--	8	--	5	3	83
PER CENT	80.8	--	9.6	--	6.0	3.6	100.0
			CENTRAL DISTRICT				
No. 1 Heavy DNS	4	--	--	--	--	--	4
No. 1 DNS	16	--	--	--	--	--	16
No. 2 Heavy DNS	--	--	1	--	--	1	2
No. 2 DNS	22	1	--	--	2	3	28
No. 3 DNS	24	2	1	--	--	1	28
No. 4 DNS	7	3	1	1	--	--	12
No. 5 DNS	--	2	--	--	--	--	2
S. G. DNS	--	--	1	--	--	1	2
ALL GRADES	73	8	4	1	2	6	94
PER CENT	77.7	8.5	4.3	1.1	2.1	6.3	100.0
			NORTH CENTRAL DISTRICT				
No. 1 DNS	11	--	--	--	--	--	11
No. 2 DNS	9	--	--	--	3	--	12
No. 3 DNS	7	--	--	--	--	--	7
No. 4 DNS	9	--	--	--	--	--	9
ALL GRADES	36	--	--	--	3	--	39
PER CENT	92.3	--	--	--	7.7	--	100.0

TABLE B-26. PERCENTAGE DISTRIBUTION AND NUMBER OF CARLOT SAMPLES OF HARD RED SPRING WHEAT DETERMINING THE GRADE BY THE VARIOUS GRADING FACTORS IN EASTERN NORTH DAKOTA, BY GRADE AND CROP REPORTING DISTRICT, JULY THROUGH DECEMBER, 1964

Grade	Test Weight	Total Damage	Foreign Material	Contrasting Classes	Shrunken and Broken	Total Defects	TOTAL
			SOUTHEAST DISTRICT				
No. 1 DNS	2	--	--	--	--	--	2
No. 2 DNS	3	--	--	--	--	--	3
No. 3 DNS	1	--	--	--	--	--	1
ALL GRADES	6	--	--	--	--	--	6
PER CENT	100.0	--	--	--	--	--	100.0
			EAST CENTRAL DISTRICT				
No. 1 Heavy DNS	2	--	--	--	--	--	2
No. 1 DNS	13	--	--	--	--	--	13
No. 2 Heavy DNS	--	--	1	--	--	1	2
No. 2 DNS	4	--	3	--	4	5	16
No. 3 DNS	2	2	2	--	1	2	9
No. 4 DNS	1	1	--	--	--	3	5
No. 5 DNS	--	1	--	--	--	1	2
ALL GRADES	22	4	6	--	5	12	49
PER CENT	44.9	8.2	12.2	--	10.2	24.5	100.0
			NORTHEAST DISTRICT				
No. 1 Heavy DNS	28	--	--	--	--	--	28
No. 1 DNS	58	--	--	--	--	--	58
No. 2 Heavy DNS	--	--	1	--	1	1	3
No. 2 DNS	36	7	1	--	4	7	55
No. 3 Heavy DNS	--	1	--	--	--	--	1
No. 3 DNS	50	10	--	--	--	8	68
No. 4 DNS	6	7	1	--	--	3	17
No. 5 DNS	--	3	--	--	--	--	3
No. 1 NS	1	--	--	--	--	--	1
ALL GRADES	179	28	3	--	5	19	234
PER CENT	76.5	12.0	1.3	--	2.1	8.1	100.0

TABLE B-27. NUMBER OF CARLOTS IN SAMPLE SURVEY CONTAINING PERCENTAGE AMOUNTS OF SPECIFIED GRADING FACTORS, BY GRADE, TOTAL NORTH DAKOTA SAMPLE SHIPMENTS, JULY THROUGH DECEMBER, 1964

Grades																					
No. 1 Heavy DNS		No. 1 DNS		No. 2 Heavy DNS		No. 2 DNS		No. 3 Heavy DNS		No. 3 DNS		No. 4 DNS		No. 5 DNS		S. G. DNS		No. 2 Heavy NS		No. 1 NS		No. 3 NS	
No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
											DOCKAGE												
16	0.0	66	0.0	7	0.0	70	0.0	1	0.0	33	0.0	11	0.0	4	0.0	1	0.0	1	1.5	1	0.5	1	0.5
19	0.5	97	0.5	7	0.5	98	0.5			57	0.5	18	0.5	2	0.5	2	0.5						
10	1.0	49	1.0	2	1.0	49	1.0			35	1.0	11	1.0	1	2.0								
2	1.5	14	1.5	2	2.0	18	1.5			12	1.5	6	1.5										
2	2.0	24	2.0			11	2.0			6	2.0	2	2.0										
1	2.5	20	2.5			1	2.5			4	2.5	1	3.0										
1	3.5	11	3.0			4	3.0			2	3.0	1	3.5										
2	4.0	3	3.5			2	3.5			2	3.5	1	4.0										
		3	4.0			2	4.0			1	4.0												
		3	4.5			1	5.0			1	5.0												
										1	5.5												
											FOREIGN MATERIAL												
				3	0.6	5	0.6			1	1.2	1	2.3			1	5.2						
				1	0.7	7	0.7			1	1.4	1	2.9			1	5.5						
				2	0.8	16	0.8			1	1.5												
				1	0.9	4	0.9			1	1.6												
						7	1.0			1	1.8												
											SHRUNKEN AND BROKEN												
				1	3.3	2	3.1			1	5.4							1	4.2				
				1	4.1	3	3.3			1	5.9												
				1	4.5	5	3.4			1	7.0												
						3	3.5			1	7.2												
						4	3.6			1	7.5												
						7	3.7																
						5	3.8																

(continued)

TABLE B-27. (continued)

Grades											
No. 1 Heavy DNS	No. 1 DNS	No. 2 Heavy DNS	No. 2 DNS	No. 3 Heavy DNS	No. 3 DNS	No. 4 DNS	No. 5 DNS	S. G. DNS	No. 2 Heavy NS	No. 1 NS	No. 3 NS
No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.	No. Amt.
					SHRUNKEN AND BROKEN (con't.)						
			4 3.9								
			6 4.0								
			9 4.2								
			3 4.3								
			2 4.4								
			5 4.5								
			7 4.6								
			0 4.7								
			1 4.8								
			5 4.9								
					DAMAGED KERNELS						
			1 2.2	1 4.3	1 4.2	1 7.1	1 10.4				
			1 2.4		1 4.3	1 7.2	2 10.5				
			1 2.5		1 4.5	1 7.6	1 10.8				
			1 2.6		1 4.7	1 8.2	1 11.6				
			1 2.8		2 4.8	1 8.5	1 13.2				
			1 3.3		1 5.0	1 8.6					
			1 3.5		1 5.4	2 8.7					
			1 3.9		1 5.5	1 9.4					
					1 5.7	1 9.5					
					1 5.8	1 9.7					
					1 6.2	1 9.8					
					1 6.4						
					1 6.8						
					CONTRASTING CLASSES						
						4 DNS					
						1 2.9					