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Marketing Northern Alfalfa Seed

Dale C. Dahl

MARKETING NORTHERN ALFALFA SEED

BY

DALE C. DAHL

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MARKETING NORTHERN ALFALFA SEED

This thesis is approved as a creditable, independent investigation by a candidate for the degree, Master of Science, and acceptable as meeting the thesis requirements for this degree; but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Adviser

Head of the Major Department

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CHAPTER I

INTRODUCTION

Situation

Alfalfa seed has become a farm crop of increasing importance. Total hay acreage in the United States has remained practically unchanged during the past two decades, but alfalfa hay, during this period, has increased by over 100 percent. Accompanying this increased acreage in alfalfa hay, total alfalfa seed production for the United States has nearly tripled.[1] In turn, the incomes of farmers engaged in alfalfa seed production have multiplied approximately three times during the past twenty years.

Alfalfa seed is not a homogeneous product. For many years it has been agronomically grouped into "hardy" and "non-hardy" alfalfa seed. The term "hardy" denotes a type of alfalfa that can withstand the cold winter weather predominant in the northern part of the United States. This factor of hardiness is the principal cause of two distinct production and marketing areas. The hardy alfalfa

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[1] Utilization of the greater production of alfalfa seed, in relation to hay acreage, apparently has been made possible by a gradual change in farming operations from long-term to short-term rotation programs.

seed primarily has been grown and consumed in northern states while "non-hardy" alfalfa seed has been produced and marketed almost exclusively in the southern part of the United States.

In recent years another element of heterogeneity has become evident in alfalfa seed marketing and production. Alfalfa seed has been grouped into "certified" and "non-certified" categories. Certified alfalfa seed means that the seed produced has been regulated and inspected by a state certifying agency. Upon passing rigid inspections, the seed is "certified" to represent a variety of known performance and adaptation. A certified variety has been evaluated for performance characteristics in addition to having fulfilled field and laboratory requirements. Purity requirements for certified alfalfa seed, including freedom from noxious weed seeds, are generally higher than for non-certified seed.

Government farm service groups, such as the United States Department of Agriculture, state experiment stations, and county agricultural extension agents, have been recommending that the farmer plant only true, adapted varieties of alfalfa seed for assurance of superior quality and yield. These groups have especially recommended certified alfalfa seed for all farmers and either hardy or non-hardy seed depending on the farmers' location. As a result, the use of certified, adapted alfalfa seed by the United States farmer is becoming

more widespread.

Alfalfa seed production has increased markedly in the past several years. This increased production is due mainly to the emergence of California as an alfalfa-producing state. California production has climbed rapidly during the past ten years. Row planting and advanced techniques in spraying, irrigating and harvesting have given rise to relatively large yields which have, in turn, led to new advertising and merchandising methods that were virtually unheard of in the alfalfa seed industry before 1950. In 1957 California produced 53.1 percent of all the alfalfa seed grown in the United States.

Most important economically, perhaps, is the fact that California has produced a certified alfalfa seed and has been able, through vertical integration, to maintain a continuous supply for its ever-growing market.

In direct contrast to this, South Dakota and its sister states of North Dakota, Montana and Wyoming have produced a non-certified alfalfa seed which is generally known as "Northern alfalfa seed". Although this four-state area has for many years been considered a primary production area for hardy alfalfa seed, the supply has been unstable. The seed produced in this area is often the result of an afterthought on the part of the farmer or rancher. Once his hay needs have been realized, he may harvest a second crop of alfalfa in the form

of seed, weather permitting.

This combination of factors has led, gradually but steadily, to a decrease in the market for Northern alfalfa seed. The Northern alfalfa seed, being non-certified, has had to compete with certified seed recommended by agricultural advisers and scientists. A fluctuating supply has had to compete with a more stable supply. A relatively small and unorganized advertising campaign has had to compete with a large, centralized advertising program. The Northern seed producers and dealers have recognized this major problem and are attempting to find means to combat the loss of their markets.

Objectives

The purpose of this study is to determine the present competitive status of the Northern alfalfa seed producers and dealers and to analyse alternative plans for improving their status. In order to meet this ultimate objective it is necessary to:

1. Describe the Northern alfalfa seed industry and to analyze the factors responsible for the change in its competitive status.
2. Define and investigate the major markets for Northern alfalfa seed.
3. Present some possible solutions for regaining and ex-

panding these markets.

Procedures

Production figures of both alfalfa seed and its major end product, alfalfa hay, were compiled in an attempt to visualize the problem of production and consumption. Trends were noted and statistical analyses made.

A questionnaire concerning past and present practices in procurement, processing, storing, and distribution was prepared (Appendix A) and used in personal interviews with twenty-four seed firm representatives in South Dakota, North Dakota, Montana, and Wyoming (Figure 1). The seed firms surveyed were members of the Northern Seedsmen's Association, cooperators in this over-all study.

A mail questionnaire designed to determine alfalfa seed usage and attitudes towards Northern alfalfa seed was distributed to 738 county agricultural extension agents in nine major alfalfa seed consuming states (Figure 2). The states were selected on the basis of their purchases of alfalfa seed and their location.

A mail questionnaire covering usage, marketing potentials and current practices in alfalfa seed consumption was mailed to some 2572 seed dealers and large consumers throughout the United States, but mainly concentrated in the market areas of the Northern Seed Industry

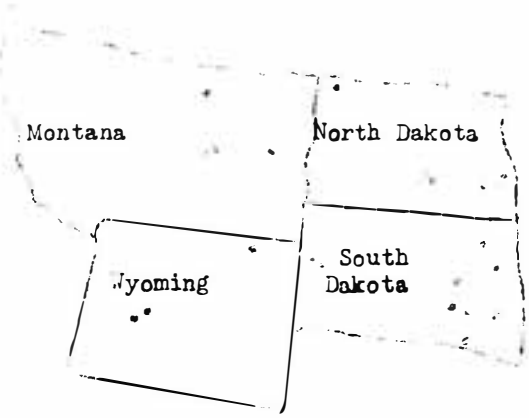

FIGURE 1. Location of Seed Dealers contacted by Personal Interview Survey

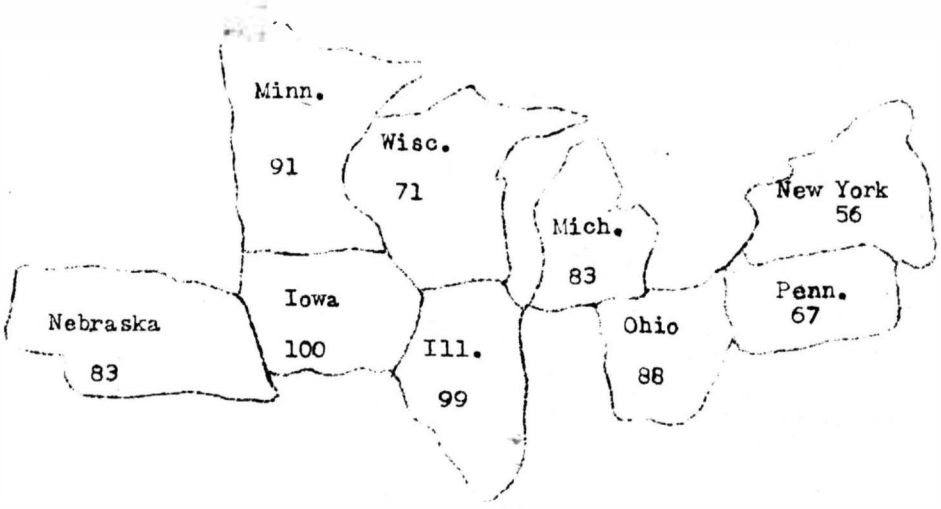

FIGURE 2. Numbers of County Agricultural Agents Contacted by Mail Questionnaire Survey in Each State

(Figure 3).[2] These firms were selected on the basis of past purchases and potential markets.

Preview

The next chapter deals with a review of similar studies conducted in the past and related projects currently being pursued.

Chapter III highlights some special background areas of the problem. To more fully understand the significance of the problem, agronomical aspects of the study are reviewed, production trends and grower attitudes are presented, and legal controls are briefly discussed.

Chapter IV defines the Northern Seed Industry. First considered are the seed handlers differentiated by amount and type of marketing function performed. This is followed by an analysis of the stages of marketing alfalfa seed, beginning with procurement and ending with distribution.

In Chapter V the alfalfa seed market is analyzed and the results of the mail surveys in these and other states are presented.

Chapter VI presents the possibilities for market expansion, future growth and direction. Alternative future actions are considered

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[2]The term "seed dealer" is used in the broad sense as defined in the Federal Seed Act: "Any person who cleans, processes, sells, offers for sale, transports or delivers (seed) for transportation."

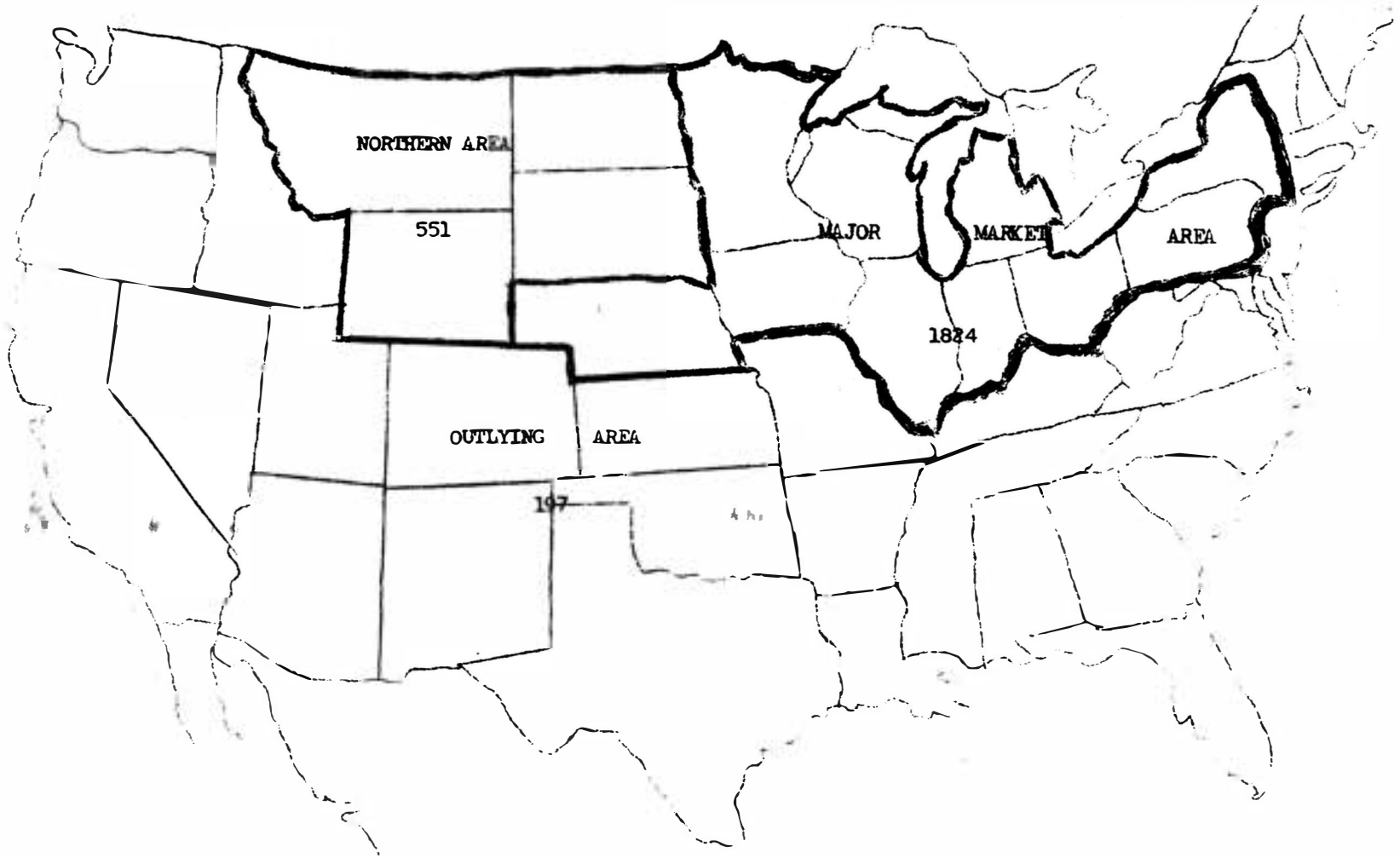

FIGURE 3. Numbers of Seed Dealers and Large Consumers Contacted in Each Area by Mail Questionnaire Study

and recommendations are made.

Chapter VII includes a summary of the research and the conclusions drawn from this study.

CHAPTER II

REVIEW OF LITERATURE

General

The alfalfa seed industry is relatively unexplored. The major research contributions appear to have been made by agronomical scientists. Some economic studies, however, have been conducted in the alfalfa seed industry. Perhaps the first major study was conducted in Kansas in 1948. This study dealt with the cost of producing Kansas alfalfa seed and considered alternative methods of production and harvesting from an economic standpoint.[3] Several other "cost-of-production" studies have been completed, notably in California and more recently in Wyoming. All of these studies have had little bearing on the objectives of this research and accordingly have been omitted from this review. Only two descriptive studies of the marketing channels for alfalfa seed were found. One was made by the Agricultural Marketing Service of the United States Department of Agriculture and the second by the Cornell and Pennsylvania Agricultural Experiment Station. Each of these studies will now be briefly discussed.

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[3] "Economics of Alfalfa Seed Production in Kansas", Agricultural Economics Report No. 36, Kansas Agricultural Experiment Station: Manhatten, Kansas, October, 1948.

United States Department of Agriculture Study

A pamphlet entitled "Seed Marketing Channels for Grass and Small-seeded Legumes in the North Central States, 1954-55" was published "to meet a basic need for information on seed marketing".[4]

The objectives of this study were of a descriptive nature. It was proposed to describe (1) the marketing methods and channels used by wholesale dealers in grass and small-seeded legume seed and (2) the services and functions that these dealers provided.

The data used were obtained through a personal interview survey of some 59 wholesale dealers of these seeds in the North Central states.[5] These dealers included 27 larger wholesalers that handled over five million pounds of seed annually and 32 smaller wholesale units handling less than five million pounds of seed yearly. The 32 smaller dealers represented one-sixth of the total smaller wholesalers in the North Central states. The North Central region was selected for the study because some 36 percent of all wholesale seed dealers are located

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[4]Issued by the Marketing Research Division, Agricultural Marketing Service, United States Department of Agriculture as Marketing Research Report No. 158, March, 1957.

[5]These states include Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, and the eastern portion of North Dakota, South Dakota, Nebraska, and Kansas.

there, over one-third of all grass and small-seeded legume seeds are produced in this area, and a majority of the seed is consumed there.

The study was divided into four sections. The first section dealt with methods used and functions performed by wholesalers in obtaining the seeds from the producer. A second section described the functions rendered and procedures utilized by wholesalers in cleaning, packaging, and inspecting the grass and legume seeds. Sales channels, sales areas, and merchandising practices and problems were elaborated in the third section of the study. The final section dealt with the increasing importance of certified seed.

Cornell Study

The "Usage of Seed of Improved Forage Crop Varieties in the Northeast",[6] a progress report of a study currently being pursued by Cornell University under contract with the Marketing Research Division, Agricultural Research Service, United States Department of Agriculture, is the outgrowth of a need for information concerning the production and marketing trends of forage seed crops in the Northeast.

The objectives of this study were to (1) investigate and describe

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[6]"Usage of Seed of Improved Forage Crop Varieties in the Northeast," Experiment Station Progress Report 152, Pennsylvania State University: University Park, Pennsylvania, July, 1956.

the usage of improved forage crop varieties historically in the Northeast, (2) collect information necessary to project demands for these forage crops into the future, and (3) study current attitudes, practices, and relevant relationships of wholesalers, retail seed dealers, and colleges of agriculture in forage crop seeds.

To obtain these objectives 16 individual wholesalers were contacted and interviewed, and seed shipment data to retail seed dealers were obtained on the basis of the wholesaler's shipping records. Personal interviews, with research and extension personnel provided additional information concerning forage crop varieties. A mail questionnaire was sent to 1355 retail seed dealers in the Northeast region (about one-third of all the seed dealers in this area). Finally, predictions of potential demand were made on the basis of the information received.

Justification

Both the United States Department of Agriculture and Cornell studies were oriented to areas distinctly different from the Northern Seeds area consisting of North Dakota, South Dakota, Montana, and Wyoming. Further, the two studies were concerned mainly with areas in which alfalfa seed is being distributed rather than produced. Because of this, the particular problems involved in the northern

producing area could not be identified.

The Cornell and United States Department of Agriculture studies dealt with grass and small-seeded legumes seeds as a group. Accordingly, this information is of a different character than if the studies dealt with alfalfa seed alone.

Both the United States Department of Agriculture and Cornell studies are valuable in their own right. However, they do not shed sufficient light upon the problems discussed in the previous chapter nor achieve the objectives of this research. It is, therefore, concluded that research in this area is justified.

CHAPTER III

PRELIMINARY CONSIDERATIONS

Objective

Fulfillment of the first objective of this study, i.e., to "describe the Northern alfalfa seed industry and to analyze the factors responsible for the change in its competitive status," is the subject of Chapters III and IV.

In this chapter factors responsible for the change in the competitive status of the Northern alfalfa seed industry are discussed. Agro-economic relationships, legal controls, grower attitudes, and production trends are believed to be primary among these factors.

Agronomical Aspects

Classifications

Alfalfa seed is a complex product. It is classified in several different, but related ways. It is described by where it is grown, what its genetic classification is, what its various characteristics are, or by the type of processing and production methods used in marketing. Each of these several classifications has an economic significance. Merchandising methods, for example, are based on the hardiness of the seed, the purported attributes of the particular variety of the seed,

whether or not it is certified, or on its purity with respect to other crop or weed seeds. These classifications that have become so important in alfalfa seed marketing have developed over a long period of time, some through experience, some through planning. It is important, therefore, that some consideration be given to this agronomical aspect of alfalfa seed marketing.

Common Seed

It is said that the beginning of alfalfa is contemporary with man.[7] Although wild alfalfa is not widespread today, the plant is traced in its original wild form to southwestern Asia, the same general area to which many anthropologists have traced man's first habitat.[8] From this origin, alfalfa traveled by way of Persia to Arabia, where it received its name. In Arabian, alfalfa means "the best fodder". Historically, alfalfa traveled through North Africa, then to Spain, and from Spain to England. In England, alfalfa was called "lucerne".[9]

Alfalfa came to America by two routes. The spaniard, Cortez,

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[7]F. D. Coburn, The Book of Alfalfa, p. 1, Orange Judd Company: New York, 1912.

[8]William Howells, Mankind So Far, p. 244, Doubleday: Garden City, New York, 1948 and Kroeber, A. L., Anthropology, p. 31, Harcourt, Brace and Company: New York, 1948.

[9]Joseph E. Wing, Alfalfa Farming in America, p. 48, Sanders Publishing Company: Chicago, 1909.

in the words of one author ". . . carried murder, rapine and havoc to Mexico, but gave alfalfa".[10] The plant was also introduced to South America, with Chile being recognized as the source of the first recorded seed planted in California in 1854.[11]

The Atlantic coast states received alfalfa from England during the colonization period under the name of "lucerne". Here the plant was not widely accepted. This, perhaps, was because the soils in this area do not contain a sufficient lime or alkali concentration to allow the excellent growth experienced in California.

In California, alfalfa grew rapidly, inducing other states to test its growth on their soils. Utah had unusually good success with alfalfa and soon became an exporter of alfalfa seed.

It was from Utah that alfalfa seed was introduced to western South Dakota in 1881.[12] By 1919, every county in South Dakota grew alfalfa seed. That year South Dakota ranked as the highest producer of alfalfa seed in the United States (Figure 4).

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[10]F. D. Coburn, op. cit., p. 2.

[11]George Stewart, Alfalfa-Growing in the United States and Canada, p. 29, MacMillan: New York, 1926.

[12]Harley N. Johnson, "Alfalfa Growing in Western South Dakota," Monthly Weather Review, May, 1919.

Hardy and Non-hardy Seed

The seed, up to this time had all been "common" seed, not really differentiated at all. After seed was introduced to the Northern United States, alfalfa, which grew perennially, was many times "killed out" because of the severe cold weather. By natural selection, the stronger or hardy plants survived the winters.

These factors brought our first classifications. There was hardy alfalfa seed that stood the test of cold winters, and the non-hardy seed that could grow safely only in the Southern part of the United States.

Natural and Synthetic Varieties

Once the common alfalfa became firmly rooted in South Dakota and other alfalfa growing states, various varieties of the plant came into existence. These varieties were of two general types, natural and synthetic.

Natural varieties were those that were discovered in different areas of the world and were given a name as a separate type of alfalfa. Synthetic varieties, on the other hand, were those that had been bred from existing varieties or common seed.

One of the first recognized natural varieties was Grimm

alfalfa.[13] This alfalfa derives its name from a German settler, Wendelin Grimm, who brought the seed with him to Minnesota in 1857. This variety is believed to have originated in Norway before Grimm discovered it and eventually planted it in Carver County near Excelsior, Minnesota. The ability of Grimm alfalfa to withstand the cold winters far excelled any common alfalfa. This property of hardiness in Grimm alfalfa was officially recognized in 1900 by agronomist Lymen of the University of Minnesota and became the heart of its popularity. Predictions at the 1903 meeting of the Minnesota agricultural Society suggested that the Grimm variety would institute an era of alfalfa seed dominance in Minnesota. Although this prediction came true to an extent, the Grimm variety soon came into a competition with varieties grown in South Dakota.[14]

Peoneering in the search for new natural varieties was Professor N. E. Hansen of South Dakota who traveled to Turkestan where he discovered a variety later named Turkestan alfalfa. Another excursion by Professor Hansen resulted in the discovery of Cossack alfalfa, named in honor of the inhabitants around the Don River of Russia

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[13]W. A. Wheeler, Grassland Seeds, P. 336, Van Nostrand Company: New York, 1957.

[14]W. A. Wheeler, Beginnings of Hardy Alfalfa in North America, p. 12, Northrup, King and Company: Minneapolis, 1951.

where he found this alfalfa growing.[15]

Experimental breeding work with the natural varieties produced several new varieties. W. A. Wheeler, extension agronomist at South Dakota State College, from 1903 to 1907, started selective breeding work in alfalfa that was considered by some authorities of the time the beginning of improvement work in alfalfa in North America.[16]

In the following years many new varieties were developed, mainly through breeding rather than discovery, by experiment stations all over the United States. Such varieties as Ladak and Baltic were among the few natural varieties introduced while there were a great number of synthetic varieties bred.

Yield and Wilt-resistance Properties

The attributes of hardiness and hay yield were of primary importance in breeding until the 1930's. In this decade bacterial wilt, a plant disease, became a factor of considerable importance. In response to the need of finding a variety with the least susceptibility to bacterial wilt, Ranger alfalfa was bred at the Nebraska experiment station in 1943. This variety soon became the most prominant alfalfa because of its combined hardy, wilt-resistance and high yielding

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[15] Ibid., p. 19.

[16] Ibid., p. 16.

qualities. Today Ranger alfalfa is sown more than any other alfalfa variety.[17]

Since the development of Ranger, newer varieties have been introduced on the market. Some of these varieties, such as Vernal, appear to be superior to Ranger in several ways. Still other new varieties have been developed stressing area orientation. For example, Narragansett alfalfa was developed in Rhode Island for use in the New England area and Teton alfalfa was developed by the South Dakota Experiment Station for use in the North Central region.

Identification

In stressing varieties and their qualities, agronomists have had to face many problems. Significant among these problems is assuring a variety to be true. All alfalfa seed looks the same. At the present time, there is no sound, and yet practicable, method of differentiating between alfalfa varieties except by knowledge of the fields from which the seed originates. Because of this difficulty of insuring varietal purity, certain regulatory measures have been employed in determining where and under what conditions alfalfa seed has been produced. Prominent among these regulatory measures is seed origin verification.

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[17] W. A. Wheeler, Grassland Seeds, op. cit., p. 337.

Legal Controls

Verified Origin Service

In 1927, the United States Department of Agriculture created a special branch in its organization to protect the dealer and grower of alfalfa seed by designation of the origin of alfalfa seed shipped by seed dealers. Dealers were required to join the service and records of their interstate shipments of seed were traced by use of verified origin records kept by this service.

The origin identification was aimed at the hardy and non-hardy concept. Non-hardy, southern-grown seed shipped from points in the northern United States was easily mistaken for winter-hardy seed. The verified origin tag attached to the bag of seed assured the farmer that he was getting hardy seed.

Although origin is still of economic importance, the conclusion by some agronomists that hardiness is a varietal characteristic that is inherent in the plant led to the growing of seed of hardy varieties in southern areas and changed the areas of major production. Whether or not southern grown certified seed retains its hardiness is a subject of debate in the seed industry. Reference is made to Table 19 of Chapter V for substantiation of this point.

Certification

Because a variety of alfalfa cannot be identified by its seed

alone, varietal identification has been established in all states by the methods of historical record keeping and inspection. Seed of a known variety is planted by growers, and the seed that results from this planting is "certified" to be from the variety originally planted. Although this appears simple, seed certification is a complex and cumbersome method of maintaining varietal purity. To best illustrate the process of seed certification, a short record of one variety is given here.

A group of plants are selected originally by an alfalfa breeder, an agronomist trained in this field. These plants are "bred" together each year, the progeny of which are tested for characteristics of hardiness, disease resistance and yield, and bred again until, after ten or more years of careful scientific study, a strain is released and named as a new variety. The basic seed after it has been first produced is called "breeder seed".

The breeder seed is planted with the purpose of increasing the amount of the seed stock available. The "first generation" or the seed resulting from the breeder seed planting is termed "foundation seed".

This seed is then planted and its "offspring" is generally termed "registered" seed. This seed is again planted and the re-

sulting seed is called "certified" seed.[18]

These plantings are made under a special condition. To avoid contamination by "cross pollination" from other alfalfa the seed plot is separated from other alfalfa fields and stray plants by an isolation area. This measure is an integral part of the seed certification rules of all states.

Another important control measure is the record of what seeds have previously been planted in the soil. Some seeds remain dormant for several years before growing and to assure varietal purity, knowledge of previous plantings is necessary.

Weed control measures by spraying and cultivation are also emphasized as a part of the certification program.

The purpose of these regulations is to obtain seed that is as free from other seeds or varieties as possible.

Two main types of certification are possible, state and inter state.

Seed that is certified by official state agencies in the public service carry the recommendation of those agencies for adaptability in each state. This certification couples the state agricultural experi-

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[18]The word "certified" is used in a dual sense by agronomists. In addition to identifying the generation of seed produced from registered seed, the term is also employed to verify another generation, such as "certified foundation seed."

ment station recommendation for adaptability with the certification of a variety.

Those seeds that are not recommended by an experiment station for its own state but are grown in that state for other areas, are granted an "interstate certification" designation by the certifying agency. This certification method is coming into greater use by major production areas.

Seed certification of a variety for seed production purposes only is also practiced.

Foundation Seed Program

Certification is not the only problem. Seed increases are also subject to regulation and planning. Once the plant breeder has developed a new strain, the breeder seed is given to a non-profit organization called the Foundation Seed Stock Division for the purpose of increasing the amount of seed available. Under the careful supervision of agronomists, pathologists, and certification personnel, the breeder seed is planted and the progeny from this or a second generation is sold to farmer-members of the Crop Improvement Association for certified seed production. Each county has its own Crop Improvement Association with a membership of interested farmers. The farmer, in this manner, recieves the benefit of the plant breeder's efforts.

Weed Laws

Each state has laws governing the tolerance of weeds in seed sold in their state. A state weed board decides which weeds are most harmful and prescribes tolerance limits for seed sold. This test of "purity" is a service to the grower who cannot determine beforehand what percentage of the seed he buys is composed of weed seeds. Weed-seed contents are measured in percentages of the total seed and these percentages must be within tolerance limits prescribed by the state weed boards. If the seed does not meet the purity requirements, sale of the seed is prohibited. Each state determines its tolerance limits and the weed seeds considered "noxious" in their state. In addition, purity requirements are maintained through the Federal Seed Act for interstate seed shipments.

The Federal Seed Act

By power of the commerce clause of the federal constitution, the Federal Seed Act was passed in 1939 in an attempt to regulate interstate shipments of seeds. Under the act, standards of purity, germination, and origin designation were stated and the labeling practices were standardized. Advertising was regulated and certain restrictions were placed on imported seed.

Since 1939, the act has been amended several times, each time in an attempt to maintain better control of the seed passed over state

lines, and to facilitate international seed trade.

Grower Attitudes

Alfalfa seed production in South Dakota has been centered in the livestock producing area west of the Missouri River. This area is primarily noted for its livestock enterprise, and alfalfa serves to fulfill hay requirements for feed. It has been a practice for many years to grow alfalfa primarily for hay and secondarily for seed. Because of this attitude and also due to weather changes, alfalfa seed production in South Dakota has fluctuated year by year. In years of heavy moisture, hay supplies have been long and seed supplies have been short. The opposite is true in dryer years.

Through natural selection the seed in this area has become renowned for its quality of winter hardiness. The severe winter weather experienced in South Dakota proves an adequate testing ground for whether or not a seed is hardy. This origin adaptation has been of considerable economic importance in the marketing of seed from this area.

In recent years, agronomists have concluded that hardiness is not a factor necessarily related to the area where the seed is produced, but is simply a varietal characteristic. Alfalfa seed that is grown and tested for its hardiness in South Dakota can be increased for one gen-

eration in Southern states without losing this very valuable property. This has been one of the basic reasons why alfalfa seed production has shifted to Southwestern production areas of the United States.

Production Trends

Total Seed

Production of alfalfa seed in the United States has undergone at least four distinct area changes. In 1919 Utah and South Dakota were the leading alfalfa production areas. Utah outproduced any other state until 1930 (Figure 4). During the drought years of the 1930's, alfalfa seed production shifted to the eastern states (described merely as "other states" in the figure). In 1940, after the drought period, alfalfa seed production was characteristically high in the central area of the United States. In 1949, the state of California made tremendous strides in its rate of production. Since that time, California has come to be the major alfalfa seed production area of the United States, in 1957 producing 53.1 percent of the total alfalfa seed harvested.

Over the years, the four state area of South Dakota, North Dakota, Montana, and Wyoming has produced an ever-increasing amount of alfalfa seed. This production is graphically represented in Figure 5, where the leading production areas of 1954 are outlined. This area has produced a hardy, non-certified seed that in recent years

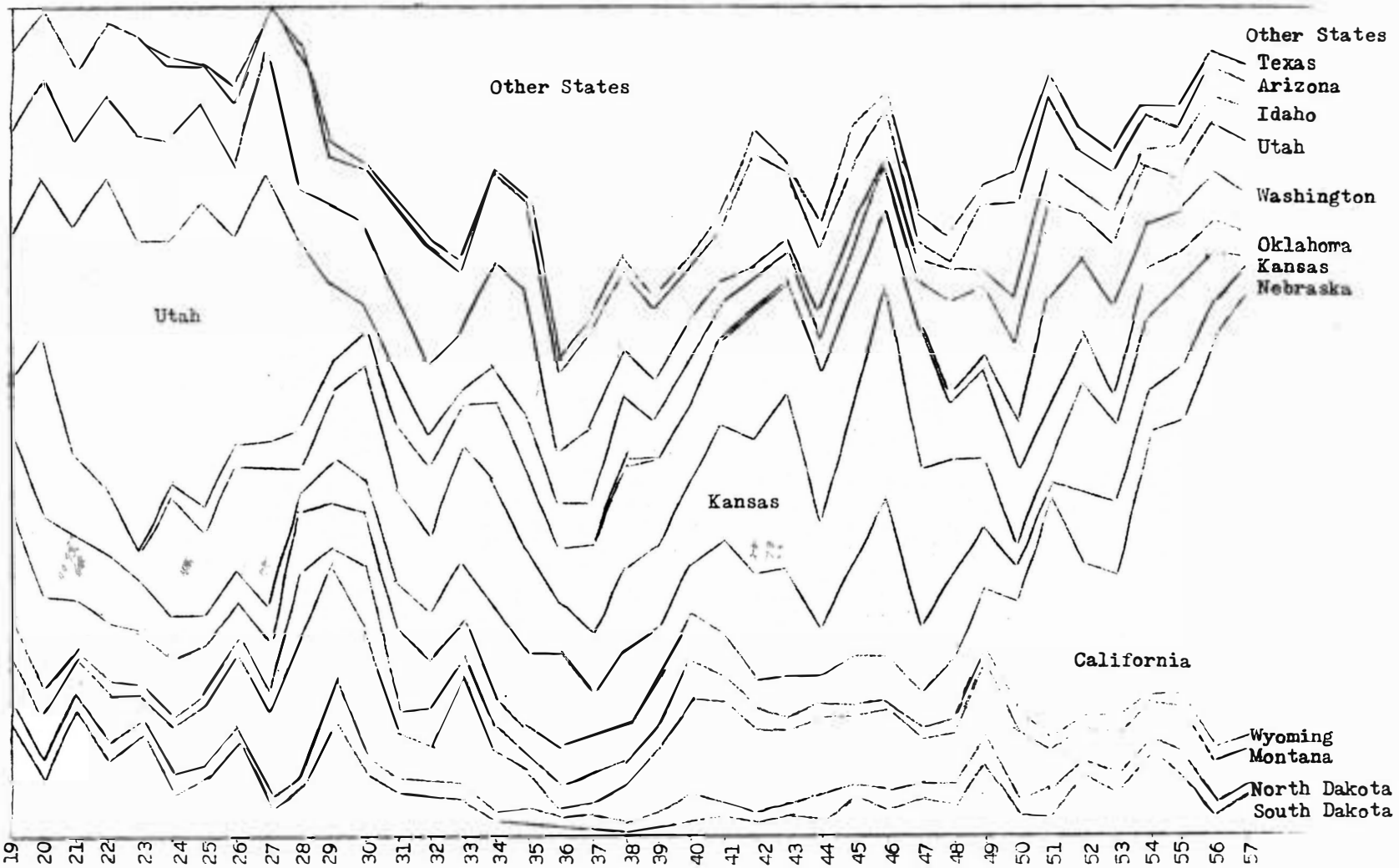

FIGURE 4. Proportionate Distribution of Alfalfa Seed Production by State of Total Produced in United States, 1919-1957*

*Derived from "Seed Crops by States, 1919-1954," Statistical Bulletin No. 206, April 1957, "Seed Crops," annual summaries for 1955, 1956 and 1957, A.M.S., United States Department of Agriculture.

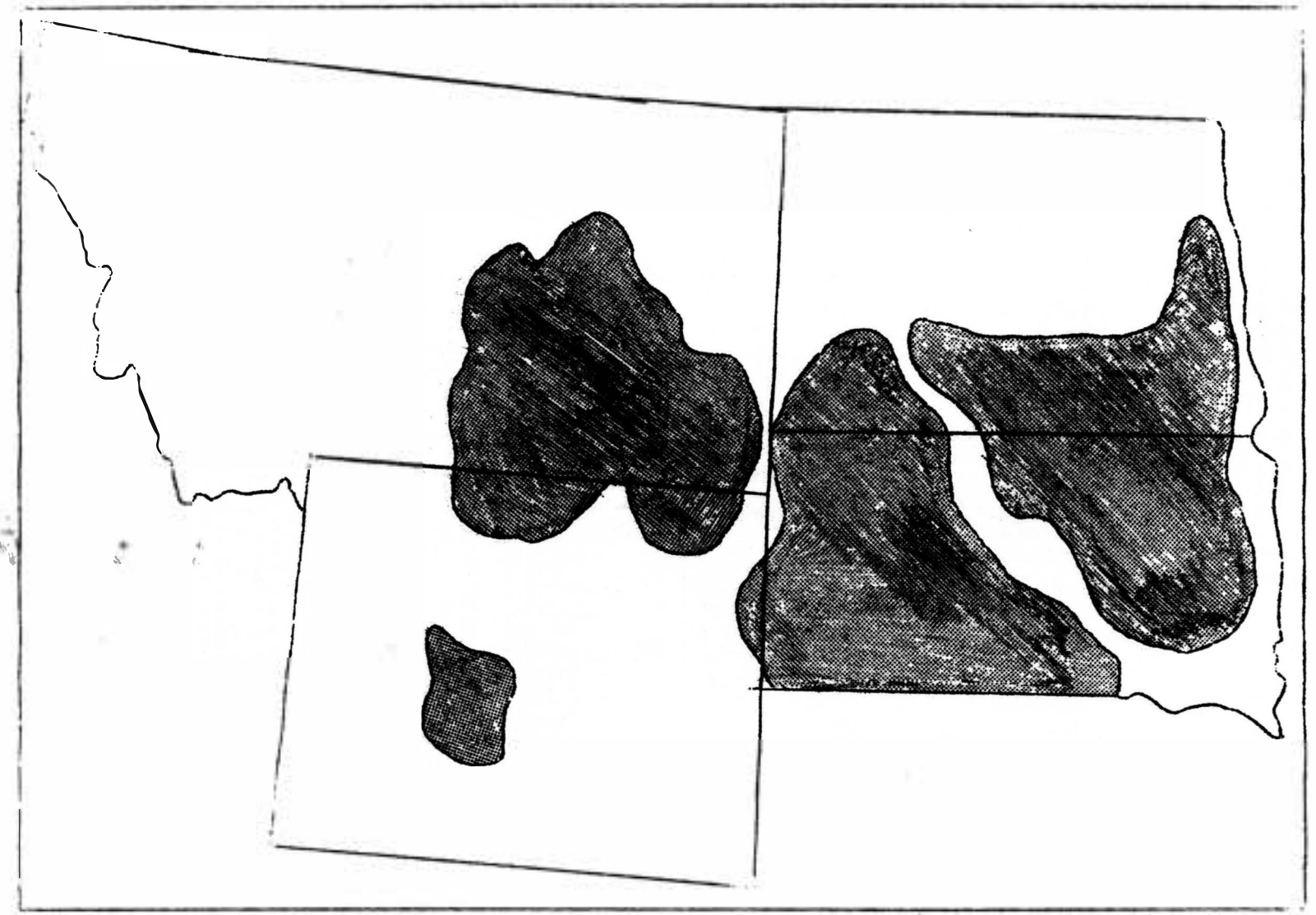

FIGURE 5. Major Alfalfa Seed Production Areas in South Dakota, North Dakota, Montana, and Wyoming in 1954*

*"1954 Census of Agriculture" Bureau of the Census, U. S. Department of Agriculture, 1956.

has come into competition with the high California production.

Comparisons between California and South Dakota acreages for alfalfa seed show that both states have increased their acreage in similar proportion, the actual acreage in both states being nearly the same in 1957 (Figure 6).

The difference in total seed production is explained by differences in yield per acre. In 1957, South Dakota yield was approximately one-fifth of the national average and only one-twelfth of the yield per acre in California (Figure 7).

Furthermore, the prices paid to farmers for alfalfa seed have changed between California and South Dakota too. South Dakota producers received a greater price for their alfalfa seed than California producers until about 1952, when California producers began receiving a greater price. This price change is attributable, to a large extent, to the change in the type of seed produced in California (Figure 8).

Certified Seed

California began producing large quantities of certified alfalfa seed in 1949, most of this being the Ranger variety. Due to the increased production of alfalfa seed by California growers, certified seed came to represent more and more of the total United States crop. In 1957, over 45 percent of the alfalfa seed produced was certified, most of this coming from California (Figures 9 and 10). Experiment

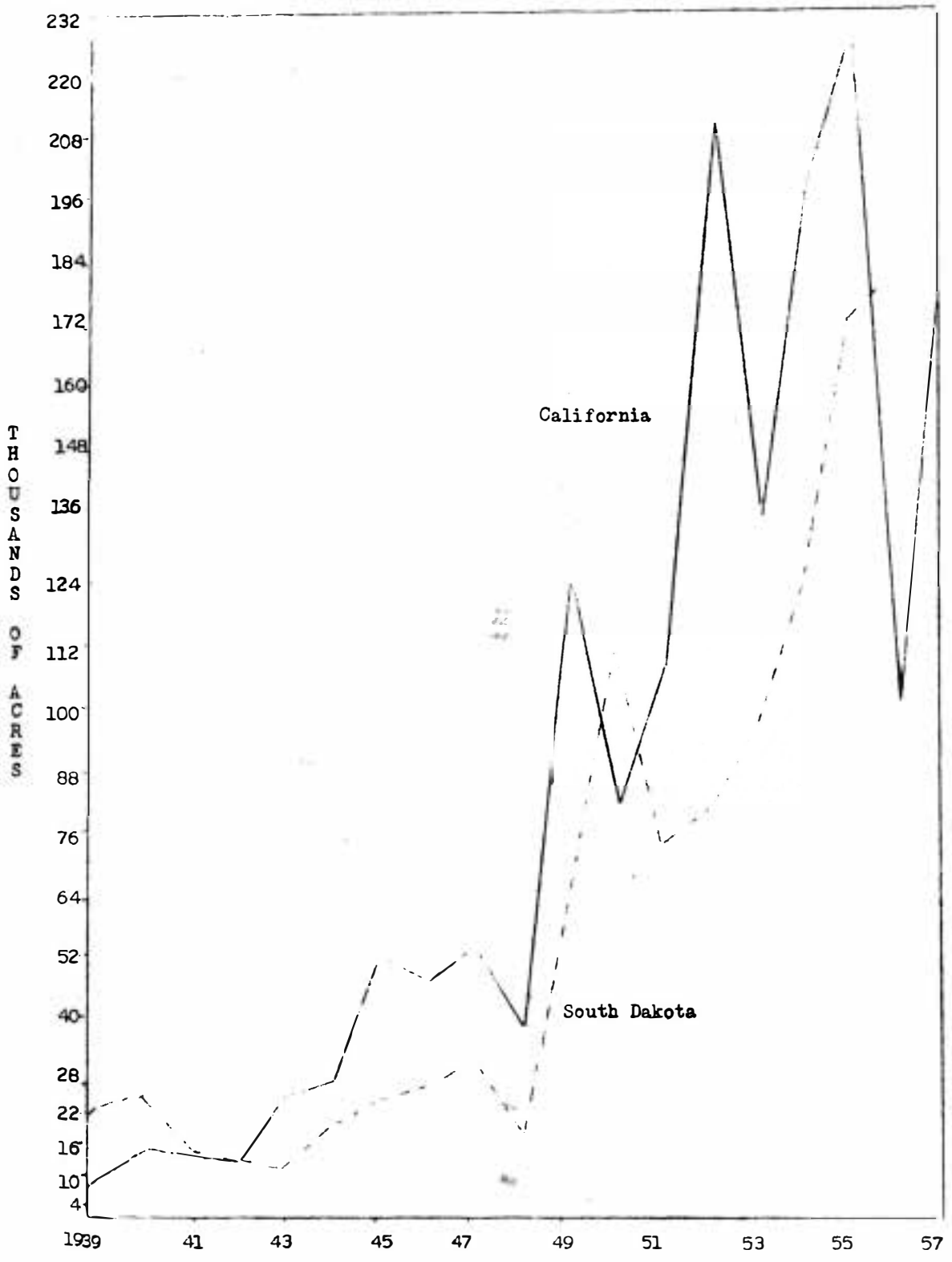

FIGURE 6. Comparison of Alfalfa Seed Acreage Harvested in California and South Dakota, 1939-1957*

*"Seed Crops by States," op. cit.

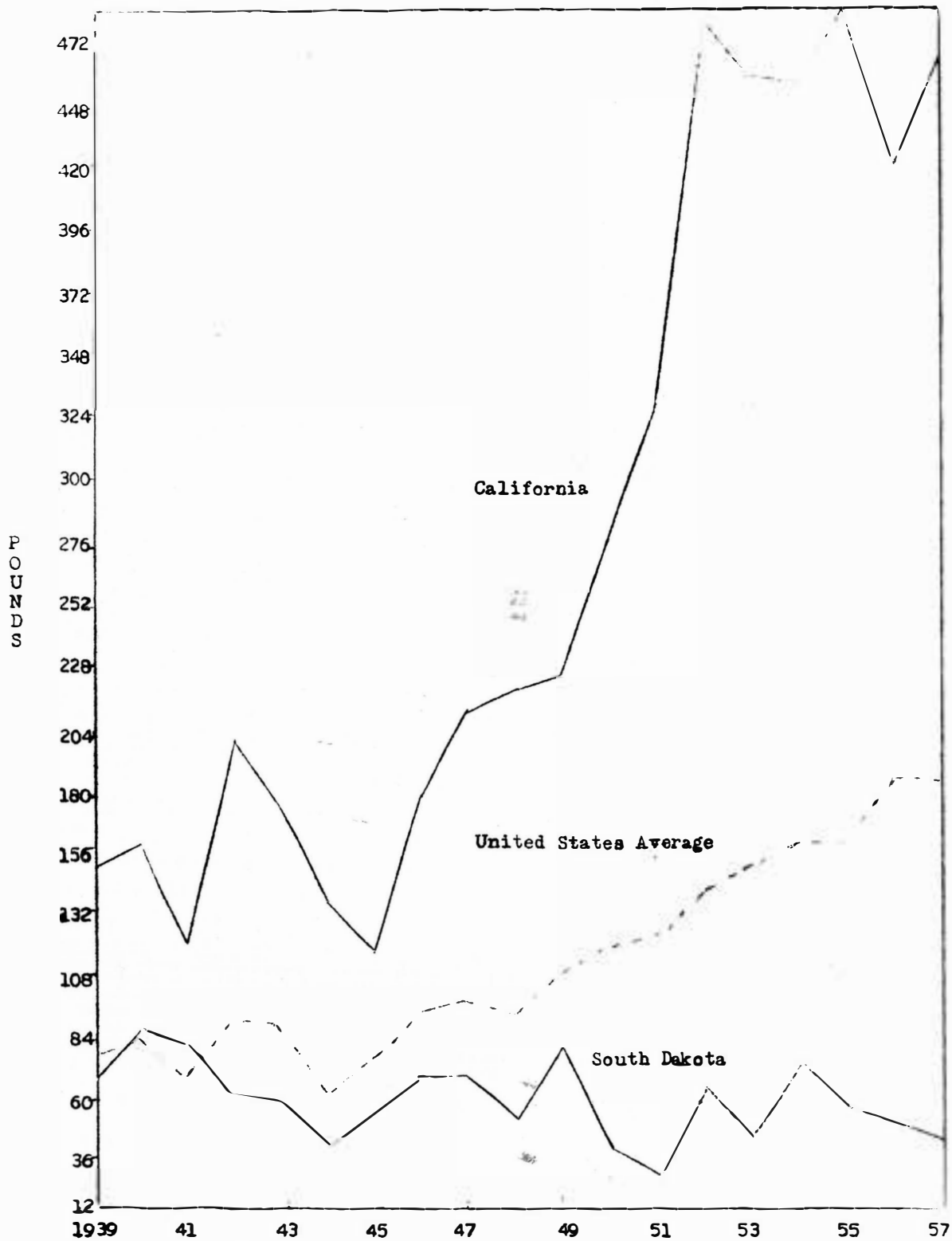

FIGURE 7. Comparison of Alfalfa Seed Yield Per Acre in California, South Dakota and United States Average, 1939–1957.

•Ibid.

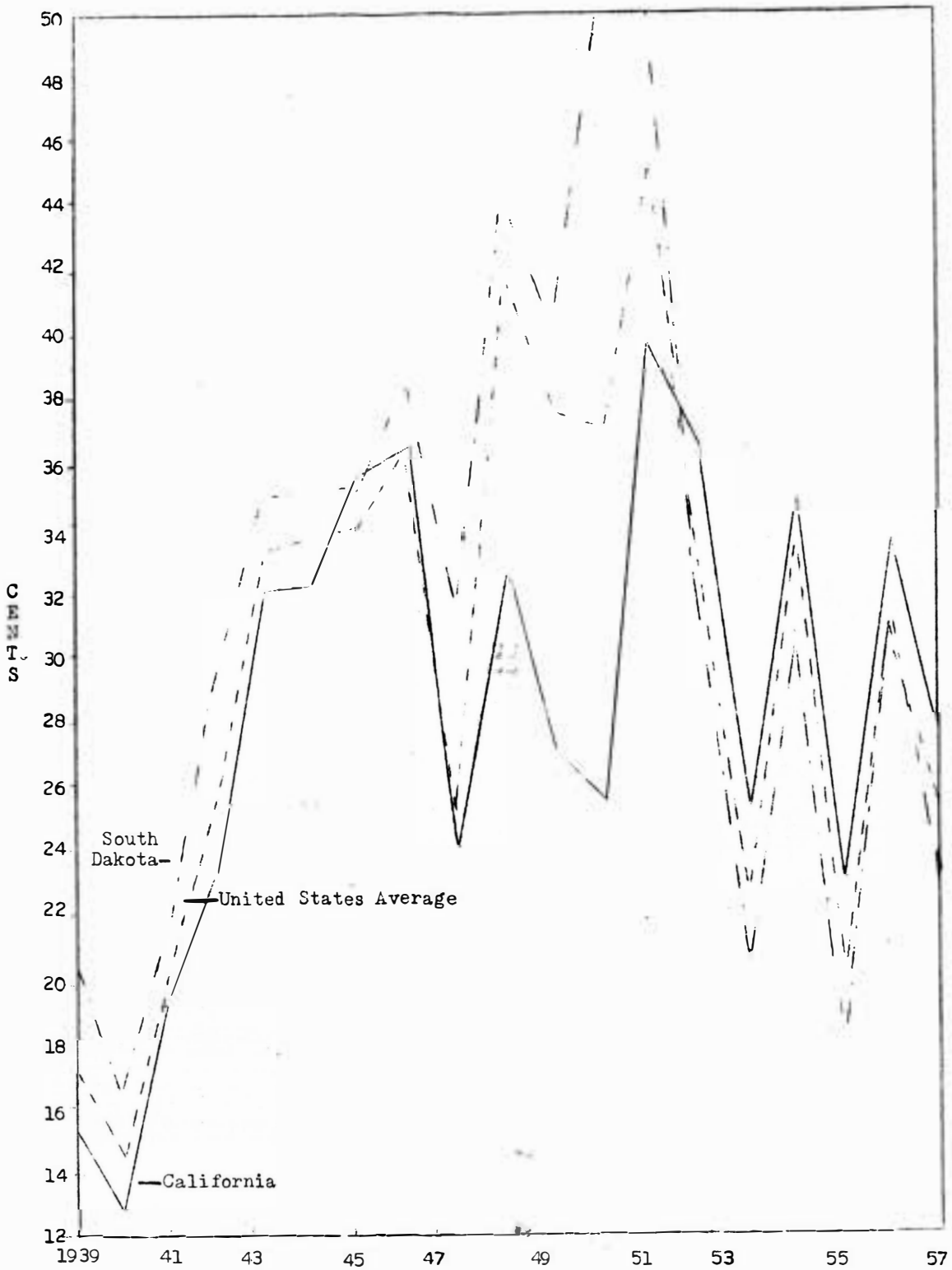

FIGURE 8. Comparison of Price Paid to Farmer for Alfalfa Seed in California, South Dakota and United States Average, 1939-1957.

•Ibid.

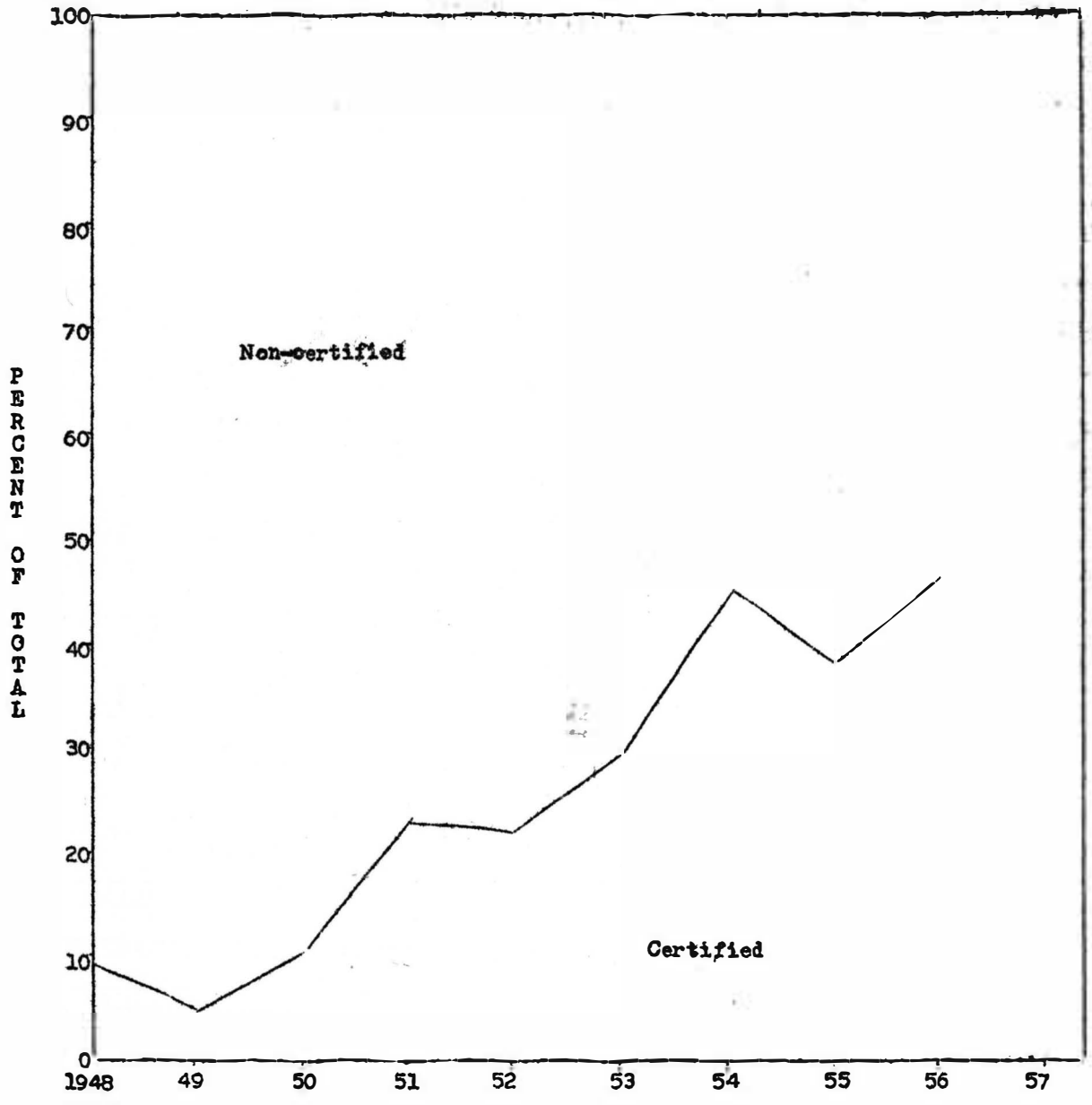

FIGURE 9. Comparison of Certified and Non-certified Alfalfa Seed Production in the United States, 1948-1956.

*"Report of Seed Certified . . . By State Certifying Agencies," for Years 1948-1956, Extension Service, United States Department of Agriculture.

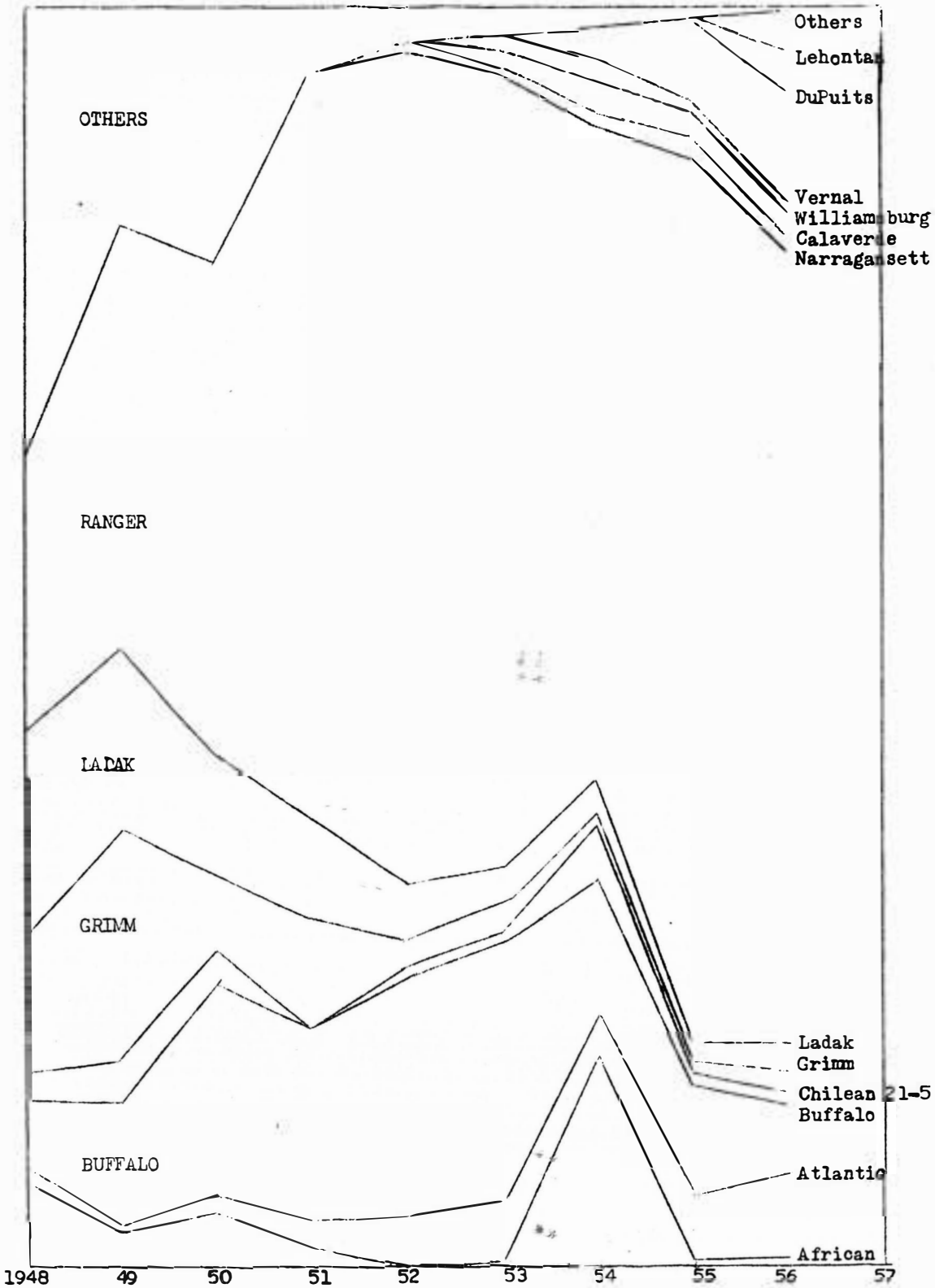

FIGURE 10. Comparison of Varieties of Alfalfa Seed Certified in the United States, 1948-1956*

*Ibid.

station recommendations over the nation included certified Ranger alfalfa seed as an all-purpose seed for the farmer to plant. These recommendations had considerable influence on the demand for certified seed.

Hay

As the major end-product of alfalfa seed, alfalfa hay plantings have increased by over 100 percent during the past fourteen years, while the total hay crop has remained relatively unchanged (Figure 11). This increase in alfalfa usage has been primarily at the expense of clovers for hay. Hay acreages by state in 1953 are presented in Figure 12. These acreages indicate the alfalfa seed consumption areas.

Hay-seed Comparisons

Total alfalfa hay acreage has doubled during the past fourteen years while seed production has multiplied three-fold. At least three reasons could account for this disproportionality: (1) more seed is sown per acre than before, (2) more seed is being exported than before, or (3) farming practices with alfalfa are changing from long to short term rotation systems.

Newer production methods do not dictate the use of more seed per acre than in years past. Quality of seed, rather than quantity used, appears to be stressed more today by production specialists.

Although alfalfa seed exports have been increasing, the amount

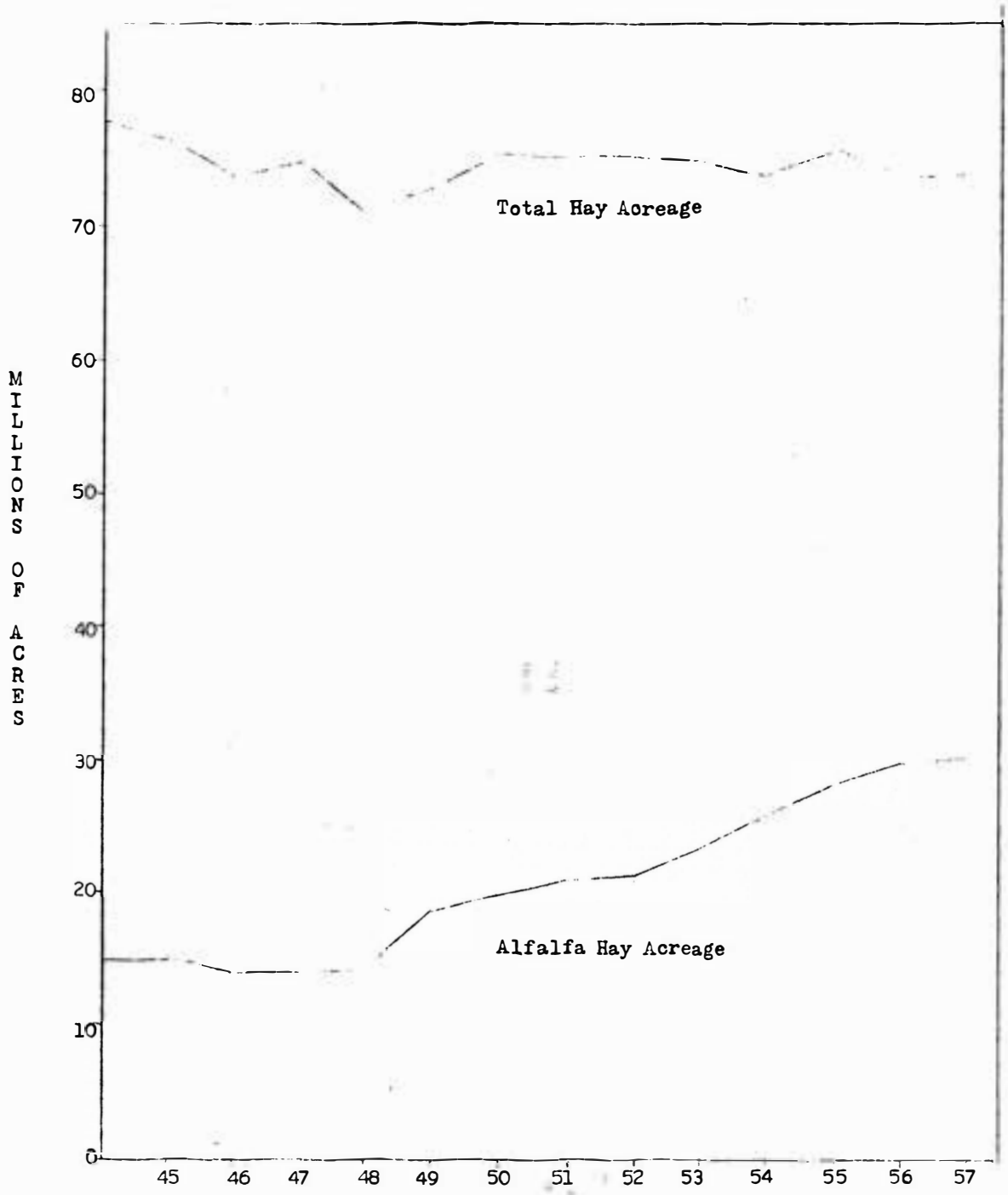

FIGURE 11. Total U. S. Hay Acreage and Total U. S. Alfalfa Hay Acreage, 1944-1957*

*Figures from following USDA releases: "Crop Production—Revised Estimates 1944-49," Statistical Bulletin No. 108, March 1952; "Field Crops by States 1949-54," Statistical Bulletin No. 185, June 1956; "Crop Production-1956 Annual Summary," December 17, 1956; "Crop Production-1957 Annual Summary," December 17, 1957.

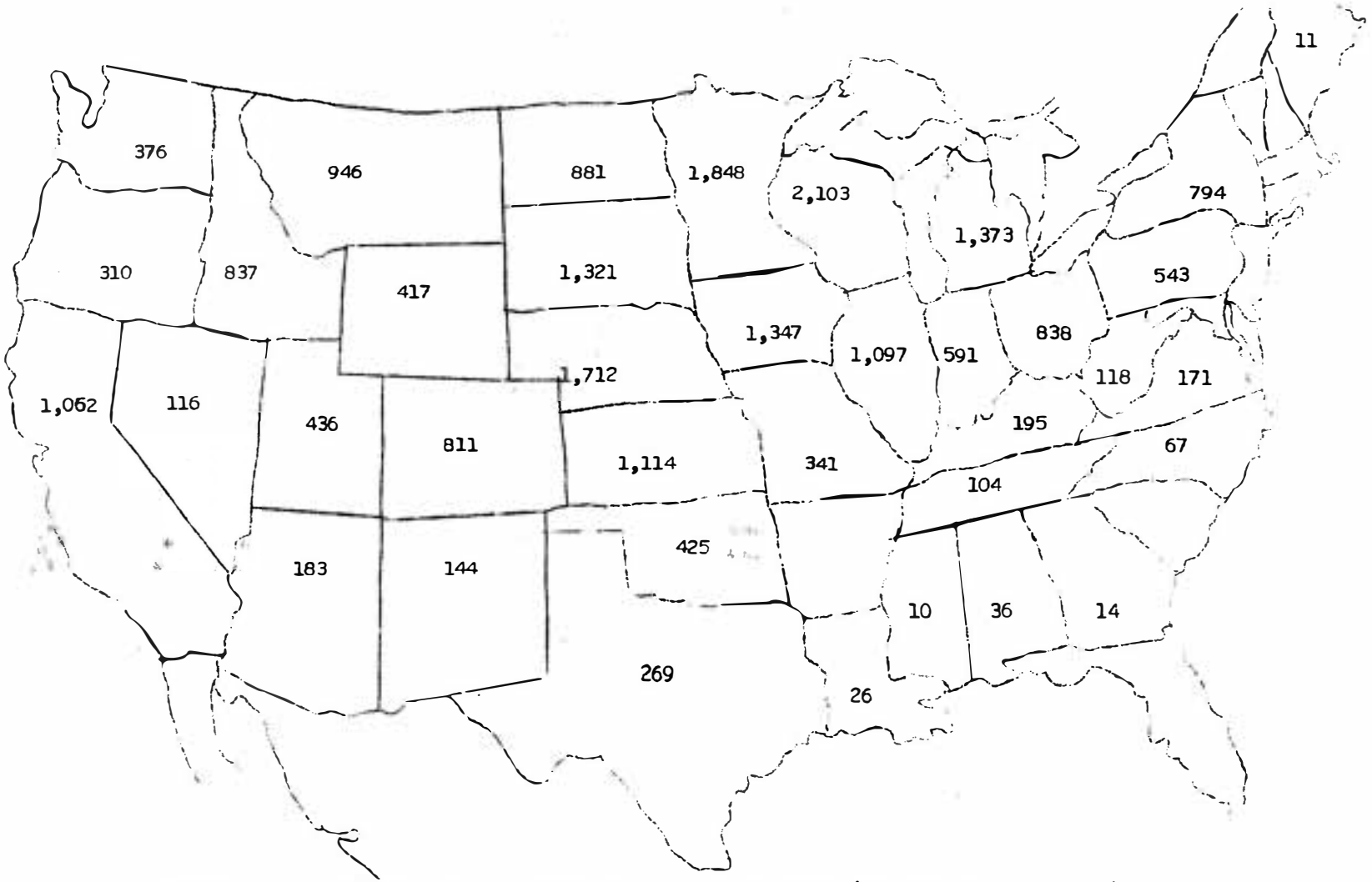

FIGURE 12. Alfalfa Hay Acreage Harvested in 1953, by State (In thousands of acres)*

*"Hay by States, 1966-1953," Statistical Bulletin No. 229, A.M.S., United States Department of Agriculture, June 1958.

of seed exported (including a reduction in imports) has not accounted for the increased use of alfalfa seed in the United States.

Unofficial reports[19] substantiate the remaining conclusion that shorter rotation programs are being used for alfalfa plantings now than years ago.

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[19] A large seed firm, for commercial purposes, has surveyed North Central land-use practices to find short rotation systems gaining in popularity.

CHAPTER IV

THE NORTHERN SEED INDUSTRY

Objective

This chapter is devoted to describing "the Northern seed industry" and, to some extent, analyzing the "factors responsible for the change in its competitive status--the first objective of this study.

The Dealer

The information contained in this chapter is derived primarily from personal interviews with managers of seed firms located in South Dakota and the neighboring states of North Dakota, Montana, and Wyoming. The remarks were directed through use of a questionnaire (Appendix A), but informal comments were solicited.

The cooperating seed dealers were members of the Northern Seedsmen's Association, a contributor to this research. The firms numbered 24, 10 of which were located in South Dakota, eight in North Dakota, three in Wyoming, and three in Montana.

Besides this geographical breakdown, these firms could be classified in at least three other ways. First, the firms could be classed by their volume of alfalfa seed handled in 1957. Classified in this manner, 11 firms reported handling less than 500,000 pounds of seed; six handled more than that amount; and six companies' figures

were unavailable. Secondly, the firms could be broken down by their organisational form. Eight companies were reported to be corporations, seven were subsidiaries or divisions of larger companies, two were cooperatives, two listed themselves as proprietorships, one as a partnership, and two did not respond. Thirdly, these firms could be divided by the distribution function they performed. Ten firms reported that over 50 percent of their activity was wholesaling; 10 reported jobbing as a major function; three described themselves as retailers (two of which did their business entirely through mail order); and there was one non-respondent. These classifications can be found in a more detailed form in Table 1.

No marked effort was made to analyze these companies by any one classification in the following pages. Where applicable, classifications are made. The information, unless otherwise noted, is based on all the companies interviewed.

The Grower

The growers that these companies dealt with were, for the most part, multi-enterprise farmers having alfalfa seed production as either a supplementary or complementary endeavor. Besides the mid-Wyoming area (where certified alfalfa seed production is a prominant enterprise), only two growers were named that engaged in alfalfa seed

TABLE I. CLASSIFICATION OF SEED DEALERS INTERVIEWED BY VOLUME, ORGANIZATIONAL FORM, AND MAJOR DISTRIBUTING FUNCTION

Volume of Alfalfa Seed Handled in 1957 (in pounds)	Number of Companies	Form of Organization	Number of Companies
over 2,000,000	1	Divisions of larger companies	7
1,000,000-2,000,000	2	Cooperatives	2
500,000-1,000,000	3	Corporations	8
400,000- 500,000	1	Proprietorships	2
300,000- 400,000	2	Partnerships	1
200,000- 300,000	4		
100,000- 200,000	1		
less than 100,000	3		
not reporting	6	not reporting	2

Distribution Function	Companies											
	A	B	C	D	E	F	G	H	I	J	K	L
	Percent of Total Business											
Retailing	100	05	15	--	05	10	10	35	10	30	05	--
Wholesaling	--	--	25	90	05	30	20	05	60	70	95	90
Jobbing	--	95	60	10	90	60	70	60	30	--	--	10

Distribution Function	M	N	O	P	Q	R	S	T	U	V	W	Avg.
	Percent of Total Business											
Retailing	05	07	07	--	80	--	--	100	20	15	--	20
Wholesaling	95	25	90	40	20	100	50	--	80	75	25	47
Jobbing	--	68	03	60	--	--	50	--	--	10	75	33

production as a major farm enterprise.

Estimates of 6500 growers were given as consistent producers, farmers that could generally be depended upon for a seed harvest. This number constituted an average of 65 percent of the dealings made with growers each year. Because some growers deal with two or more companies, these figures cannot be considered an accurate estimate of consistent producers.

Procurement

Means

Seed was obtained by the seed companies by at least six means.

1. Traveling company buyers is, perhaps, the most common way of purchasing seed. A company employee, an experienced buyer, travels throughout a buying area dealing with farmers for their seed, sometimes before it is even harvested. The buyer is generally a commissioned agent, drawing his income from the type and volume of his purchases. No formal investigation of this procurement means was made in interviewing the seed dealers, but informal discussions indicated that this type of alfalfa seed buying was the most prevalent of the means used.

2. Local elevators provided another means for the seed dealers to obtain alfalfa seed. Dealing with local elevators took on three

separate forms.

Half of the reporting firms indicated ownership of elevators, the elevator operator then acting as a commissioned purchasing employee of the company. The number of firms owning more than twenty elevators totaled only two, most of the firms owning between one and five elevators. One company reported that this type of purchasing activity was discontinued because it was too expensive.

One-third of the companies reported having contracts with independent local elevator operators as their purchasing agents. Commissions varied with the type and quantity of seed purchased. While two companies reported an increase in this type of purchasing activity, four companies had either decreased or stopped this type of operation because of their inability to control the volume and type of seed purchased.

Many companies dealt directly with independent elevator operators who bought seed from the farmer as the first point of transfer. Over half of the firms reported dealing for their alfalfa seed purchases in this manner. One company reported increased activity with independent units while another company decreased its purchasing through this means, stating that there is too much risk involved in this form of activity.

3. Direct purchases from farmers at the main plants provided another means of procurement. These purchases were limited, gener-

ally, by the locational advantage of the farmer. Usually, only farmers living close by the dealer were dealt with in this manner. The most recurring problem in direct purchasing is handling very small quantities of seed that the farmer may bring into town with him in conjunction with other business activities. Dealers stated that the farmer could get from two to three cents more per pound if he brought his seed in in lots exceeding one thousand pounds in weight.

4. Contracts with growers provide another means of purchasing alfalfa seed. In 1957, no contracts were made for alfalfa seed with the farmer by any of the reporting companies. Ten companies reported having contracts with farmers in prior years. These contracts were discontinued for three major reasons.

1. The crops contracted for, because of weather uncertainties, were too unstable to be of real value to the seed dealer.
2. Others indicated that a contract became a source of conflict between the seed dealer and the farmer. Some felt that the farmer had taken advantage of the contract when the price was high by bringing in his neighbors' seed and by withholding seed when the price was down.
3. Some contracts were discontinued or not initiated because of the inability of the seedsman and the farmer to agree on a just price, the seed dealer losing money in some instances.

When asked what type of contract would be acceptable to both the company and the grower, only six companies declined to answer. Of those that did answer, varying types of contracts were suggested. The contracts recommended generally agreed on the following points: (1) The farmer should be granted a guaranteed minimum price. Some believed that this price, which having a minimum, would be paid to the farmer according to average price paid by one or more competing companies for the same seed; others suggested that the price be paid in relation to another variety price. It was also suggested that a single predetermined guaranteed price be offered the grower in the contract. (2) The farmer would be furnished on credit with the seed he is to plant with the stipulation that this seed would be paid back in kind by the grower at the time of harvest. Some suggested that the farmer would have the option of purchasing this seed if so desired. (3) Some dealers suggested that the farmers be allowed to have a selling period in which the farmer could take advantage of any price fluctuations that may arise. (4) No comments were made as to the types of controls the seed dealers would be allowed to exercise over the farmer's crop.

Questioned as to the future of contract growing for alfalfa seed, seven dealers stated that contract will become necessary when and if the farmer starts producing certified alfalfa seed or increasing new

varieties. Most of the dealers, however, believed that contract alfalfa seed growing would not become a major method of procurement.

5. Farmer assemblers were an active means of obtaining alfalfa seed by some companies. On the basis that larger lots will command higher prices, some farmers independently accumulate seed from neighboring farms and sell in large quantities to the seed dealers. Some seed dealers indicated that this activity was highly regarded because of its cost saving features. It is noted that this means of purchasing takes on the form of an unorganized farmer cooperative.

6. Other wholesalers were cited by sixteen firms as a constant source of their alfalfa seed supply. Most of these companies dealt with other wholesalers primarily for certified seed, California wholesale firms being mentioned predominantly. Unlike seed firms in Northeastern states, none of the firms dealt with other wholesalers on a contract basis. Six companies reported ownership of other wholesale units while four companies reported that they were owned by larger wholesalers. Wholesaling activity, on the purchase side, has generally increased during the past five years.

When questioned as to whether or not out-of-state wholesalers have purchased Northern seed through their own purchasing agents, rather than through the wholesale concerns studied, some firms indicated that out of state wholesale purchasing activities have increased

generally while others stated a decrease. Some seed dealers stated that more out-of-state wholesalers that were previously dealt with in their jobbing activity had established their own purchasing agencies within the Northern area. Estimates running from five to 50 percent of the alfalfa seed produced in the four state area were purchased by out-of-state wholesalers. North Dakota seed dealers indicated a very small amount of this activity.

Methods

At least three recognized methods of buying were cited as common among these seed firms interviewed.

1. Sight buying. The majority of the seed purchased is bought on the basis of color and other sight tests utilized by experienced seed buyers. Some companies reported 100 percent of their seed being purchased in this manner.

2. Dockage tests provided another method of purchasing seed, a dockage machine being used to determine the approximate amount of clean seed that is contained in freshly harvested alfalfa seed. This method is particularly used when the seed is sold and shipped "in the dirt" (an uncleaned state).

3. Full tests provide another method by which alfalfa seed is purchased. The seed is cleaned and tested for its purity, germination, and hard seed content before the seed is purchased. This activity is

most predominant among cooperatives.

Alfalfa seed is either purchased in the dirt or on a clean basis. In the dirt shipments are not as prominent today as they once were. Activity by the farmer to have his seed custom cleaned by the processor and then selling to the highest bidder is becoming a more important practice.

Buying Areas

In an attempt to designate buying areas of the several companies in this survey, each seed dealer was requested to outline his buying area on a map of the United States. These buying areas as designated by the seedsmen fell into four distinct groupings. The seed dealers located in eastern South Dakota were designated as Area 1, those located in eastern North Dakota as Area 2, all the dealers in Montana, western North Dakota, western South Dakota, and northeastern Wyoming were designated Area 3, and the central Wyoming dealers were listed as Area 4. These buying areas are designated, graphically, in Figures 13, 14, 15 and 16. Similar area designations are made for selling in the distribution section of this chapter.

Buying Season

Most of the alfalfa seed is purchased immediately after its harvest in October, although purchasing activity is strong through January of the next year. Purchases made from February to August are

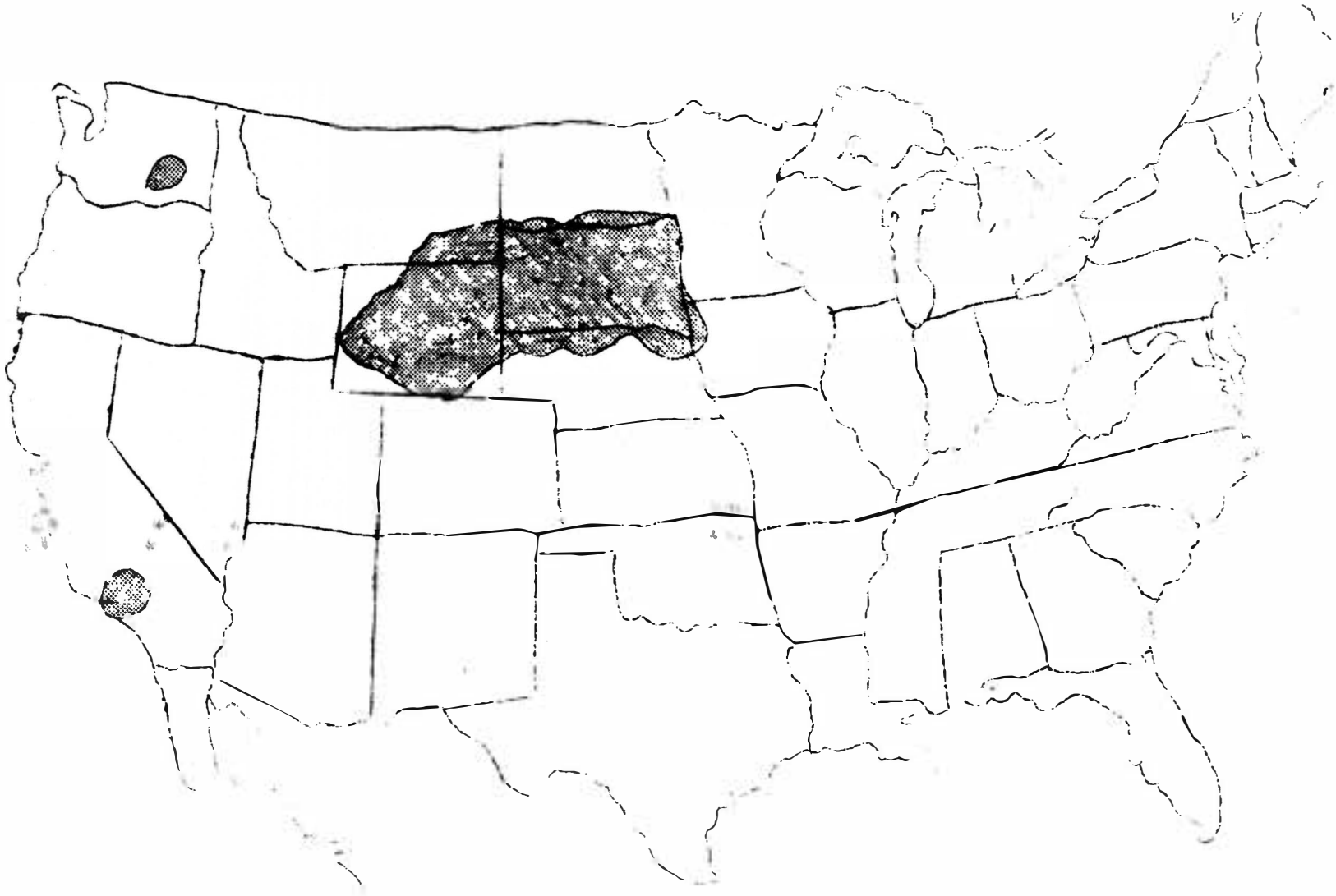

FIGURE 13. Buying Area of Seed Dealers Located in Eastern South Dakota, 1957

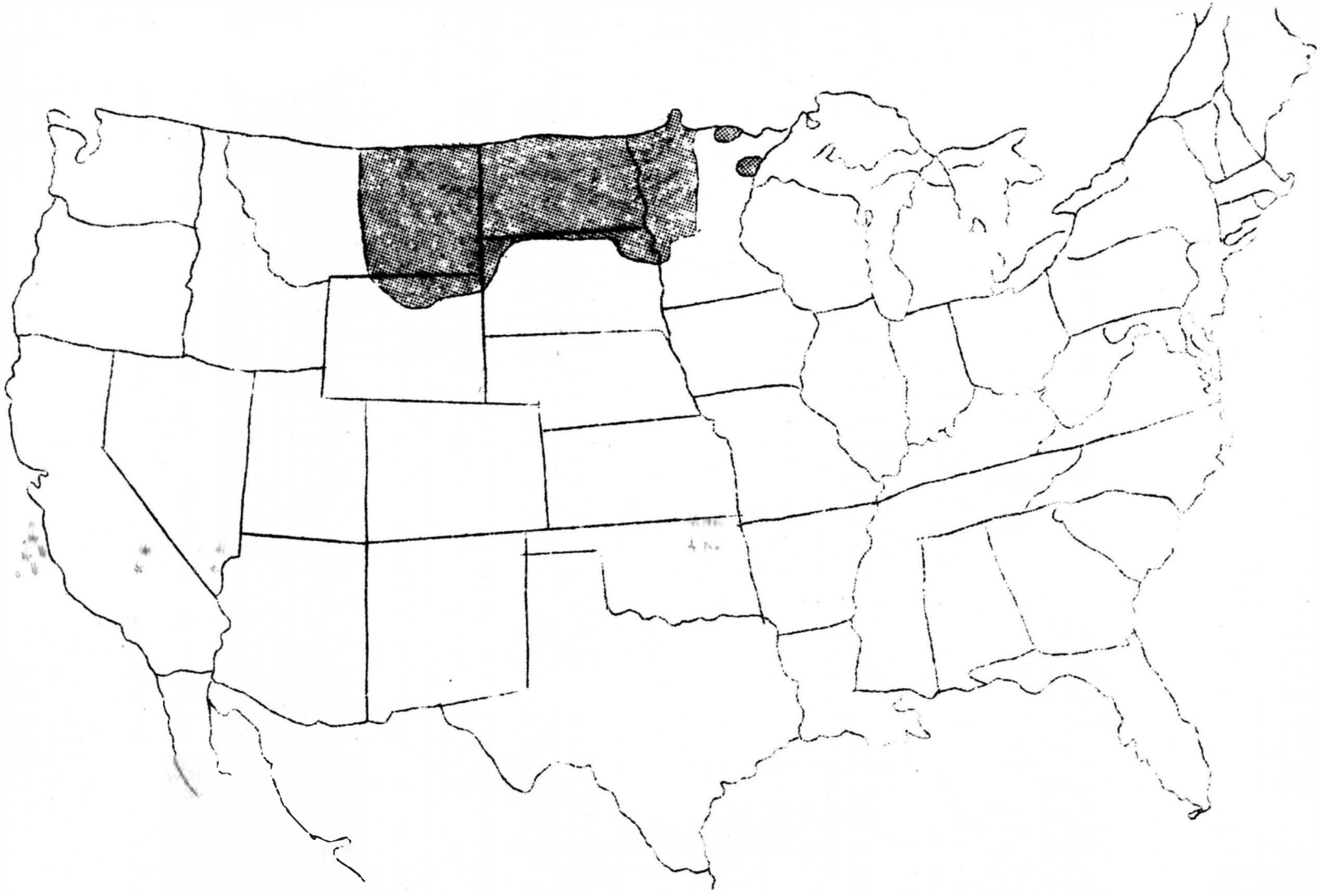

FIGURE 14. Buying Area of Seed Dealers Located in Eastern North Dakota, 1957

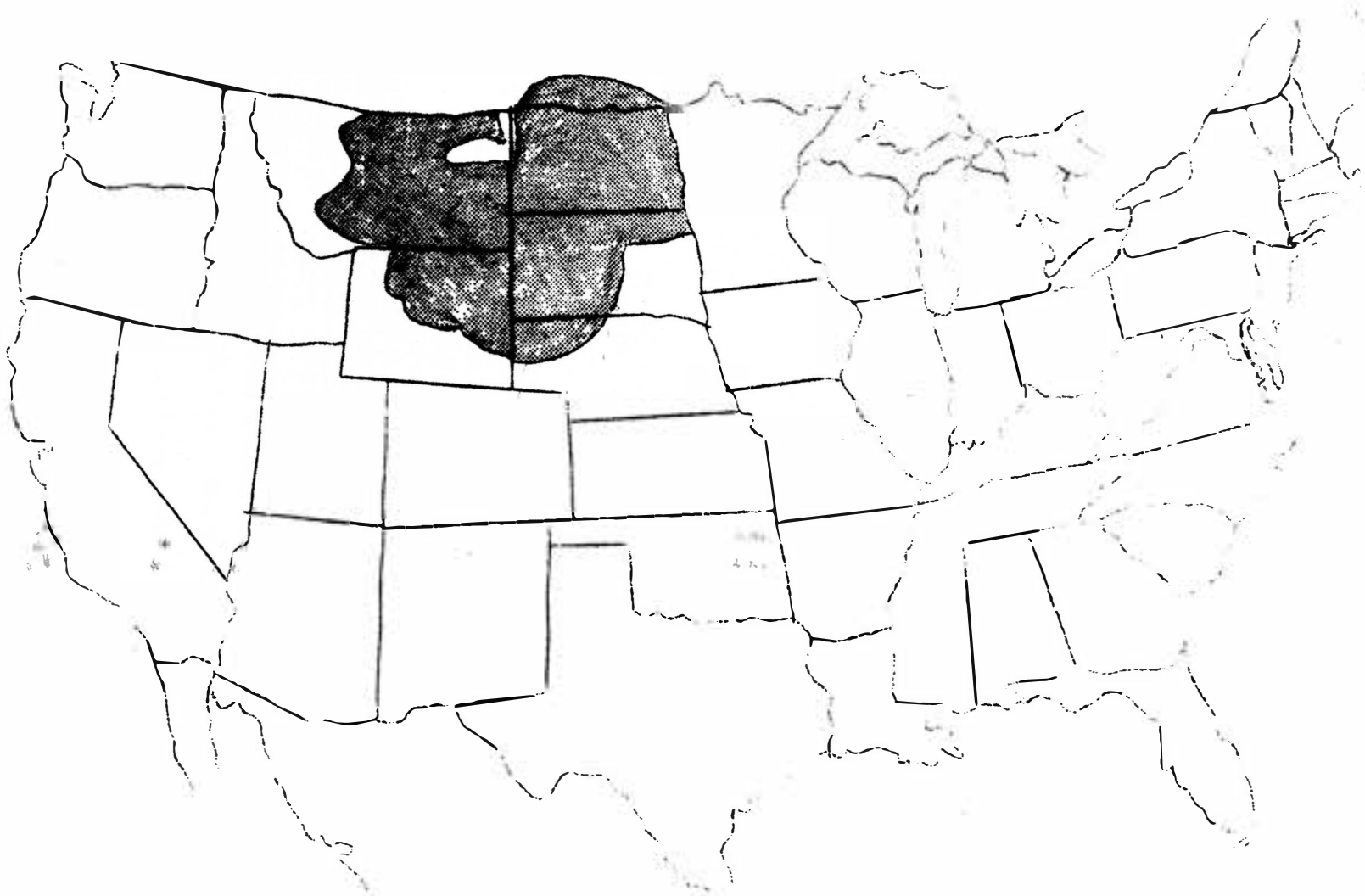

FIGURE 15. Buying Area of Seed Dealers Located in Western North and South Dakota, Montana, and Northeastern Wyoming, 1957

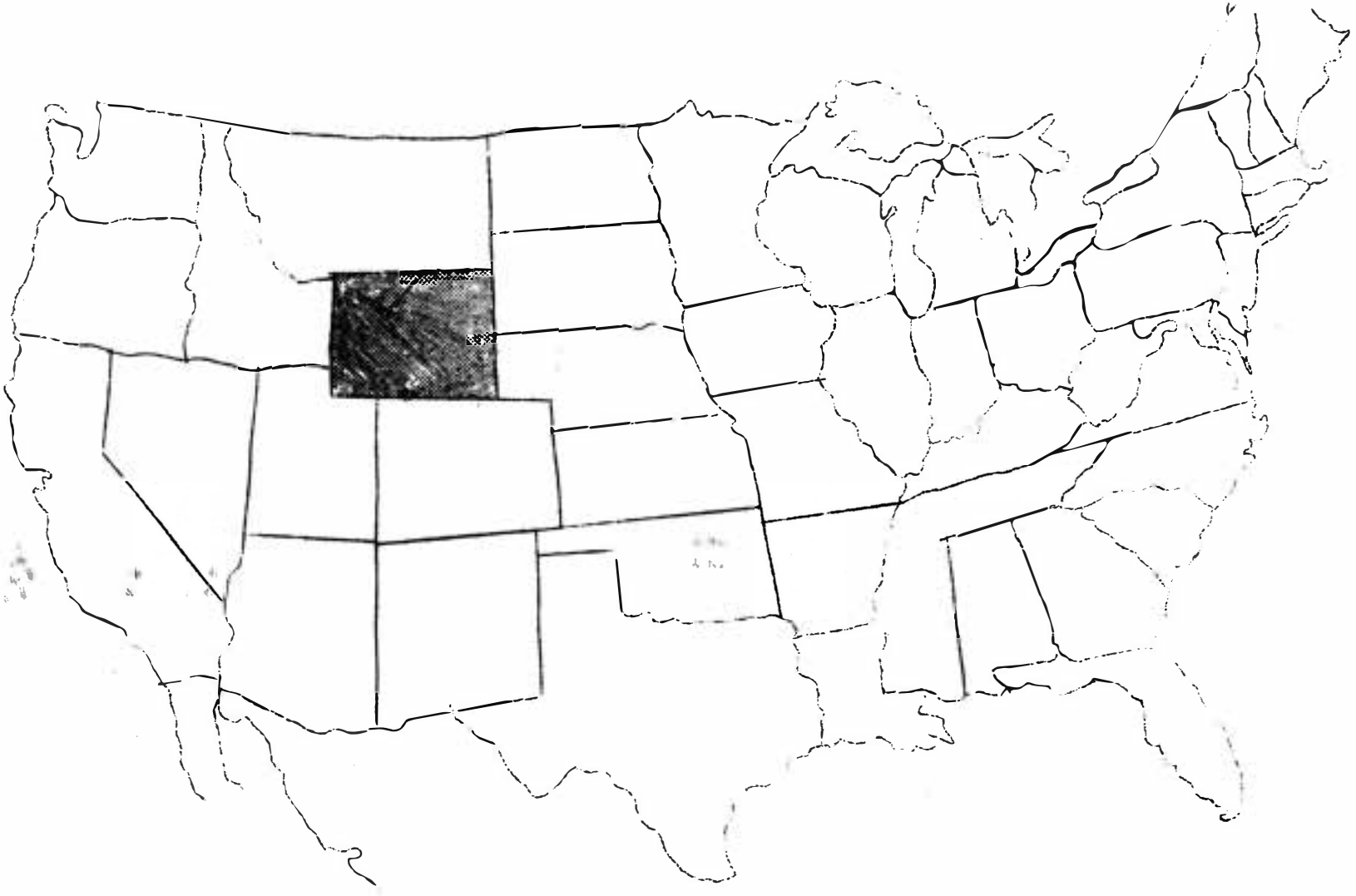

FIGURE 16. Buying Area of Seed Dealers Located in Central Wyoming, 1957

small in number, many of the purchases at this time being made from other wholesalers, particularly certified seeds. Reference to Table 2 indicates some variation in the buying season. While some purchasing began in September, at least three of the reporting companies purchased the majority of their seed after December 1. These various seasons may be due to individual procurement practices.

Varieties Purchased

Considerable variation in the types and varieties of alfalfa seed purchased was indicated through study of the purchasing records of nine companies (Table 3). For these reporting companies, 24 percent of their purchases were certified seed while the largest Northern variety purchased was Grimm alfalfa seed. Seed purchases, particularly the Northern varieties, appeared to depend upon the dealers location and type of distribution function, as well as the selling area the dealer services.

Problems

Two major problems in purchasing alfalfa seed were suggested by the seed dealers interviewed. One dealer stated that the farmer has a tendency to hold his seed for too long a period, keeping the dealer from opportunities of markets open to him immediately after harvest. Another problem, as has been stated previously, is the practice of the farmer to sell seed in small lots. Premiums will be paid to farmers

TABLE II. SEASONAL DISTRIBUTION OF PURCHASES OF ALFALFA SEED BY SEVEN COMPANIES, 1956-1957*

Month	A	B	C	D	E	F	G	Average
					Percent			
July	8.4	11.9	--	--	--	--	.8	3.0
August	7.4	--	--	12.2	3.5	--	--	3.3
September	13.7	7.1	2.4	9.3	6.8	--	--	5.6
October	51.6	11.3	23.7	17.7	19.2	14.3	28.7	23.8
November	7.2	2.8	50.1	25.4	33.1	6.9	38.0	23.4
December	11.0	47.0	16.8	10.2	37.3	14.9	16.7	22.0
January	8.3	20.0	6.6	6.9	--	21.1	15.8	11.2
February	6.5	--	.4	--	--	14.9	--	3.1
March	9.9	--	--	--	--	12.4	--	3.2
April	1.9	--	--	--	--	--	--	.2
May	.2	--	--	18.3	--	8.8	--	3.9
June	.3	--	--	--	--	6.6	--	1.0

*Seed purchases total 3,638,082 pounds.

TABLE III. DISTRIBUTION OF PURCHASES BY VARIETY BY NINE REPORTING COMPANIES, 1957*

Variety	A	B	C	D	E	F	G	H	I	Average
					Percent					
Common	30.3	17.7	34.3	10.7	35.7	72.3	16.4	25.0	31.2	30.4
Cossack	13.2	12.7	24.8	2.1	4.5	1.5	2.1	--	2.1	7.0
Grimm	11.6	17.2	12.9	35.9	22.3	--	49.1	--	18.7	18.6
Ladak	1.5	10.5	--	20.1	26.8	1.4	30.7	8.2	3.3	11.4
Ranger	4.3	15.4	8.1	13.5	--	1.7	3.4	11.8	7.9	6.2
[c]Ranger	39.1	25.3	19.2	12.1	8.9	18.9	--	54.2	25.7	22.6
[c]Vernal	--	1.0	--	5.6	1.8	1.7	2.1	--	--	1.4
Other	--	--	.7	--	--	2.4	--	.8	11.0	1.7

*Seed purchases total 4,647,757 pounds.

that assemble their seed in larger lots for the seed dealer.

Transportation

Transportation from the grower to the seed company is normally by truck. From the local dealer to the seed company it is increasingly being accomplished by truck. Wholesale shipments into the plant are still mainly by rail but this activity is changing, to some extent, to truck shipments.

Generally speaking, transportation costs are an integral part of the purchase price paid.

Processing

Seed Testing

Seed testing is a major processing function performed by the seed company either in its company laboratory, by a commercial seed testing firm, or by a state experiment station testing laboratory. This activity appears to be performed on the basis of the location of the seed company. If it is in proximity to a state laboratory this testing agency is used. Five companies stated that they used the experiment station laboratory for testing purposes, while twelve companies maintained their own laboratories and technicians for this purpose. Four companies reported using commercial laboratory facilities, while the remaining three companies used all of the testing agencies.

Seed tests are required by law to determine purity and germination of seeds with various subtests of these categories also being required. All seed must be tagged with this information.

Cleaning

Threshed or "in the dirt" alfalfa seed generally contains dirt, chaff, immature seeds, and weed seeds. This foreign material may constitute from ten to 30 or more percent of the threshed alfalfa. Various cleaning operations are used to separate the alfalfa seed from this foreign material.

A fanning mill, as an initial operation, separates much of the foreign material from the alfalfa seed. Other machinery such as the clipper, gravity mill, and Eddy mill further clean the seed.

Upon completion of the cleaning operation, the seeds are tested to determine purity and germination. The analysis from this test is placed on the tag attached to each bag of seed.

Regardless of the machinery used, if the seed contains many noxious weed seeds, the cleaning process will be incomplete. Some dealers stated that the weed seed content of the alfalfa seed grown in this area is large and difficult, if not impossible, to clean out. One suggestion included the development of a machine that would clean out sweet clover.

Bagging

All companies reporting stated that the bagging of seed was a major processing function performed by them. Except for seed received from other wholesalers, bagging is performed in all cases.

Bagging takes on two forms. The seed is either packaged in brand name bags or in an unbranded white bag. The unbranded bags, normally used in wholesale and jobbing shipments, contain 150 pounds of seed. The branded bag, on the other hand, appears to vary considerably. Larger bags are used in wholesale shipping, while smaller merchandising bags are used for retail sales. The most common bag used was the bushel container with reports of 50 to 100 pound bags being used for ease in handling.

Other Processing

Another processing function is mixing alfalfa seeds with other field seeds. Special alfalfa-clover combinations, for example, are desired by some consumers.

Another processing function is blending, where different varieties and types of alfalfa seed are mixed together in an attempt to combine the qualities of different alfalfa seeds for whatever value the farmer may think there is in them. Alfalfa blends are not recognized by state experiment stations for the characteristics attributed to them by seed dealers. Blends, however, perform the economic function of

product differentiation.

The cost of processing, including testing, cleaning, and bagging varies with the companies. The processing capabilities of all the companies combined are practically unlimited, as 47 million pounds could be handled at the present time.

Storage

Most firms stated that speculation was a common practice for them. They believed, however, that such speculation had been greatly curtailed by the continuous production patterns of California producers. When questioned as to whether speculation is good for the seed industry, most believed that it is. Through speculation many believed that they performed a primary function in holding open a steady market for the farmer. Some seedsmen stated that it is a necessary function which must be performed by someone. It was carefully pointed out, however, that one doesn't need a seed house to be a speculator.

Storage of alfalfa seed is of minor importance to most dealers. Adequate storage space can easily be rented, thereby extending their storage capabilities considerably. The amount of seed that can be stored in their present warehouses is over 42 million pounds.

Distribution

Channels

Alfalfa seed travels through different market channels. In general, these are three. Alfalfa seed is distributed through retail outlets, through wholesalers who in turn distribute to retailers, and through jobbing (Figure 17).

A more specific "flow-chart" for all grass and small-seeded legumes resulted from the United States Department of Agriculture study mentioned in Chapter II (Figure 18).

Alfalfa seed moves through these channels in two separate forms, as branded and unbranded seed. Branded seed travels through retail and wholesale outlets while unbranded seed generally goes to jobbers and wholesalers.

Transportation

Transportation from the seed companies to wholesalers and retailers is majorally effected by truck transportation. Some companies report ownership of trucks while others use licensed or contract trucks. Jobbing is facilitated by rail and, increasingly, by truck. The major objection to rail transportation is the fluctuations in rate changes. One instance was reported where a change in rate after shipment resulted in a loss to the seed dealer.

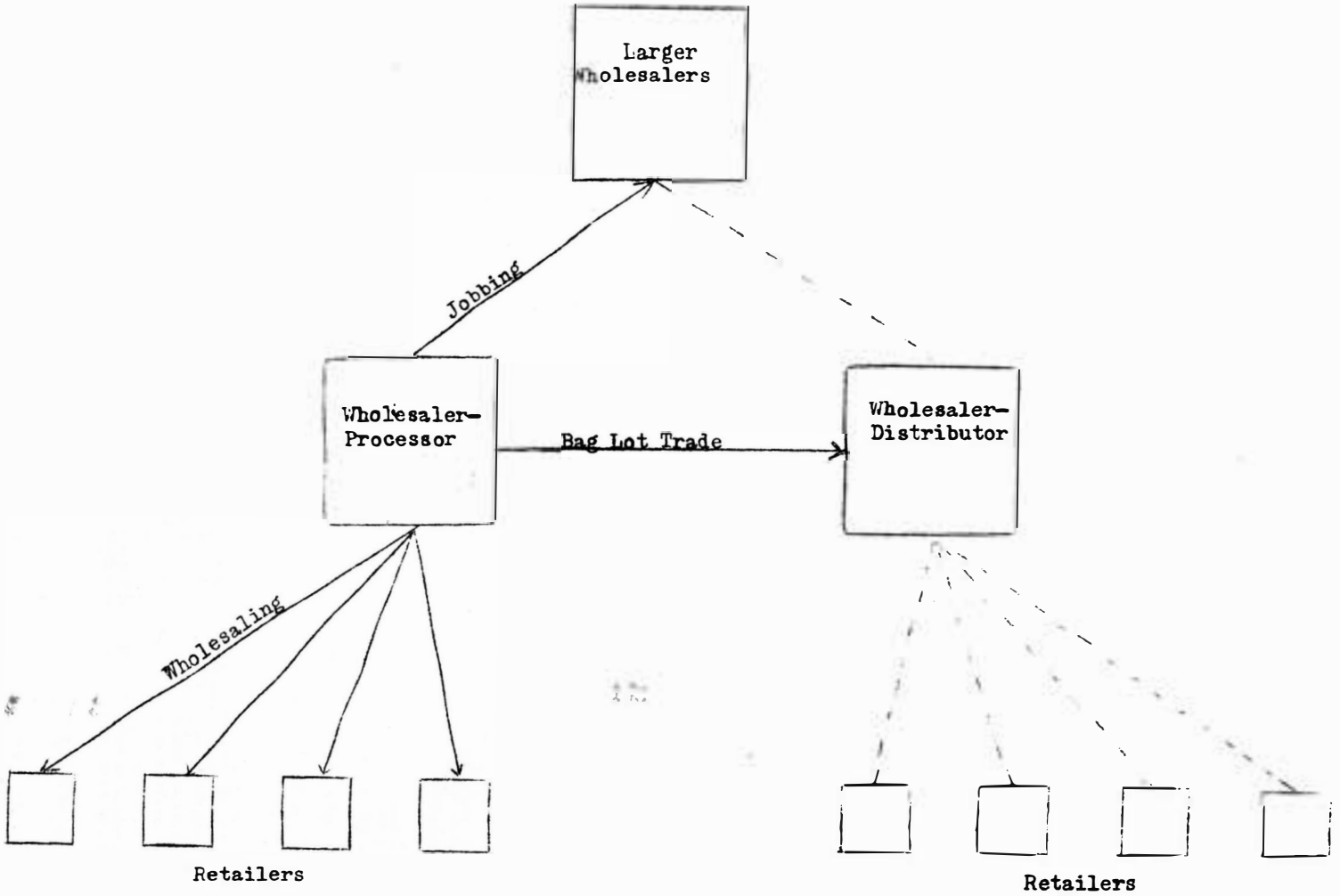

FIGURE 17. Major Sales Channels for the Northern Alfalfa Seed Wholesaler-processor.

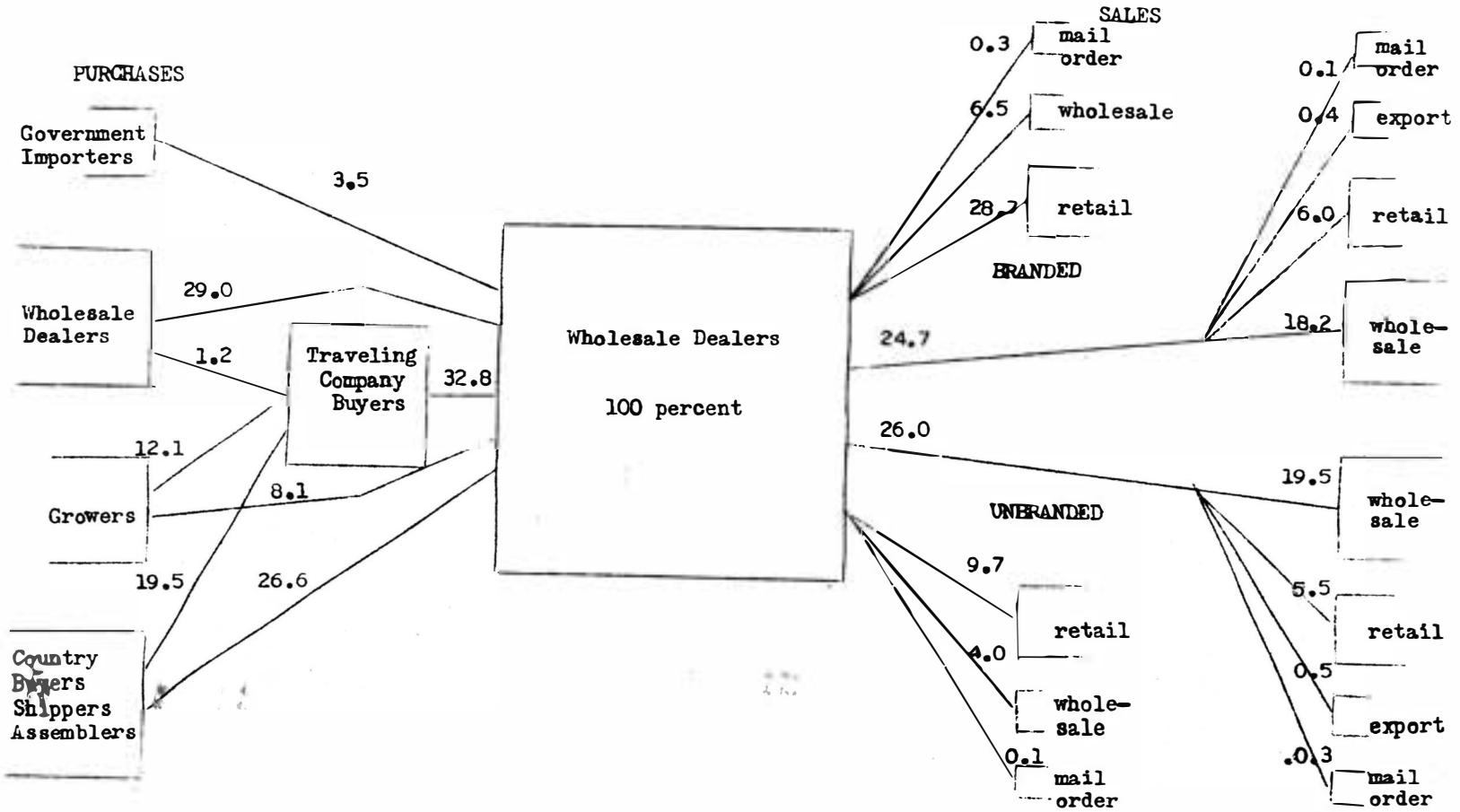

FIGURE 18. Marketing Channels for Grass and Small-seeded Legume Seed* Wholesale Dealers in the North Central Region

*"Seed Marketing Channels for Grass and Small-Seeded Legumes in the North Central Sates, 1954-55", op. cit., p. 8.

Sales Methods

One of the most often mentioned changes in sales methods was increased use of advertising as a sales method (Table 4). Of the companies reporting, 16 reported they advertised by radio, 13 though direct mail, such as price lists, 12 used newspaper advertising, 11 companies reported advertising in trade papers and four companies used television to acquaint the consumer with their product. Percentages of the sales dollar devoted to advertising varied from 0 to 11 percent. The average amount spent on advertising was 2.07 percent of the sales dollar. Only two firms reported no advertising activity at all.

Another mentioned change in sales methods was by consignment selling or selling with return privileges. Four firms reported selling by this method, one saying it was being done only on a temporary basis. Nine firms believed that such activity would tend to induce very small operators into the seed business.

Sales Areas

Seed dealers interviewed, in addition to being asked to trace their major buying areas, were also asked to trace their major selling areas (Figures 19, 20, 21 and 22). These figures indicate primary consumption areas for Northern alfalfa seed and are used in Chapter V to help define the major alfalfa market.

TABLE IV. CHANGES IN SALES PRACTICES OCCURRING OVER THE PAST TEN YEAR PERIOD AS INDICATED BY NORTHERN SEED DEALERS IN 1957

Type of change	Times indicated
More advertising of all forms	6
Faster, better service is required	3
Increase of consignment selling or selling with return privileges	4
More merchandising in general	4
Farmers and dealers making greater use of experiment station recommendations	1
Seed being sold on basis of quality rather than price	1
Discontinuance of railway transportation because of high rates	1

Pricing

Pricing policies were primarily based on local competition, with great concern for the prices set on California seed as influencing the price of alfalfa seed in the northern four-state area. Only one firm reported that they made a flat charge above purchase price regardless of competition.

With concern for the recurring statement that California price heavily influences the Northern alfalfa seed price, a statistical

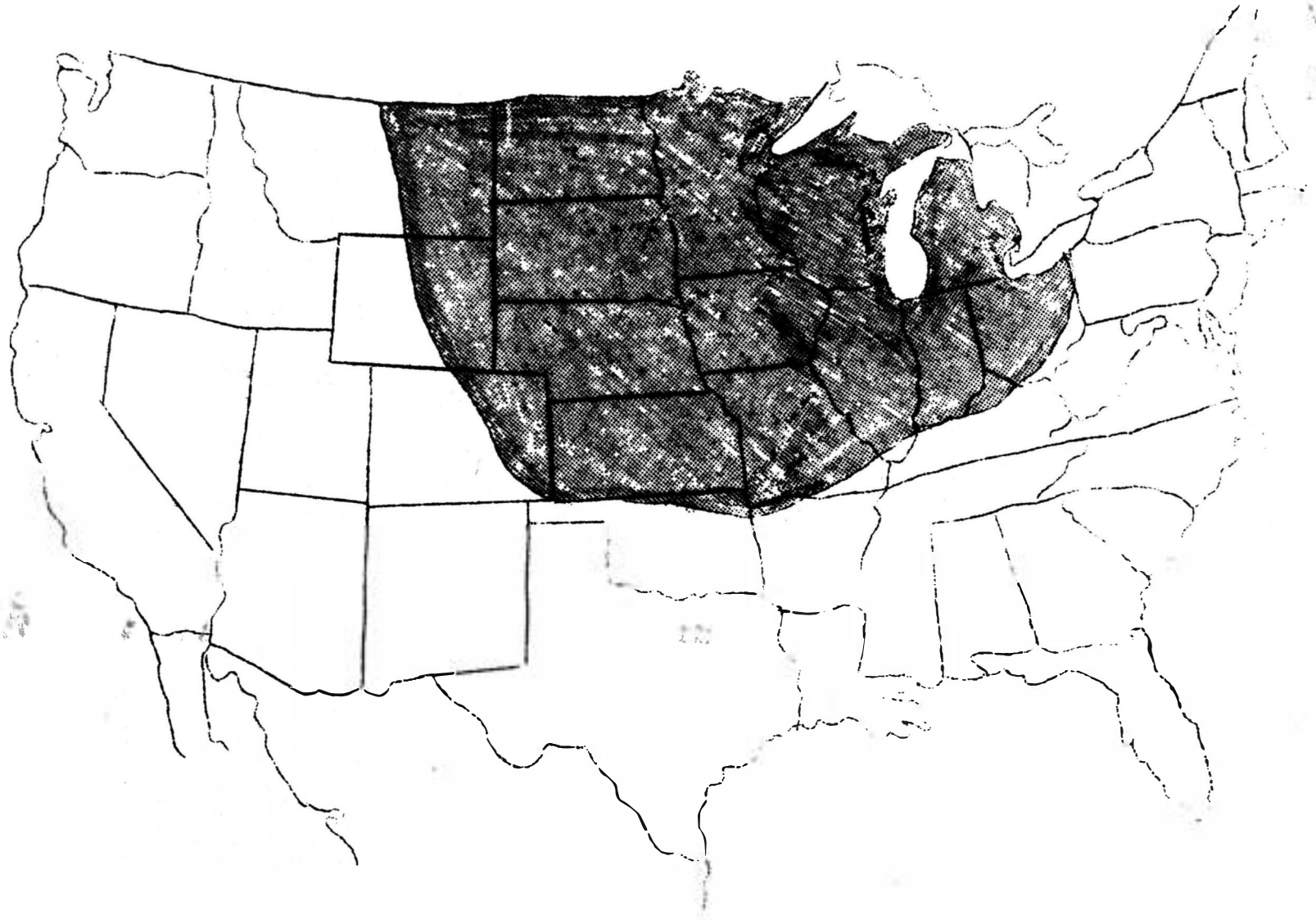

FIGURE 19. Primary Selling Area of Seed Dealers Located in Eastern South Dakota, 1957

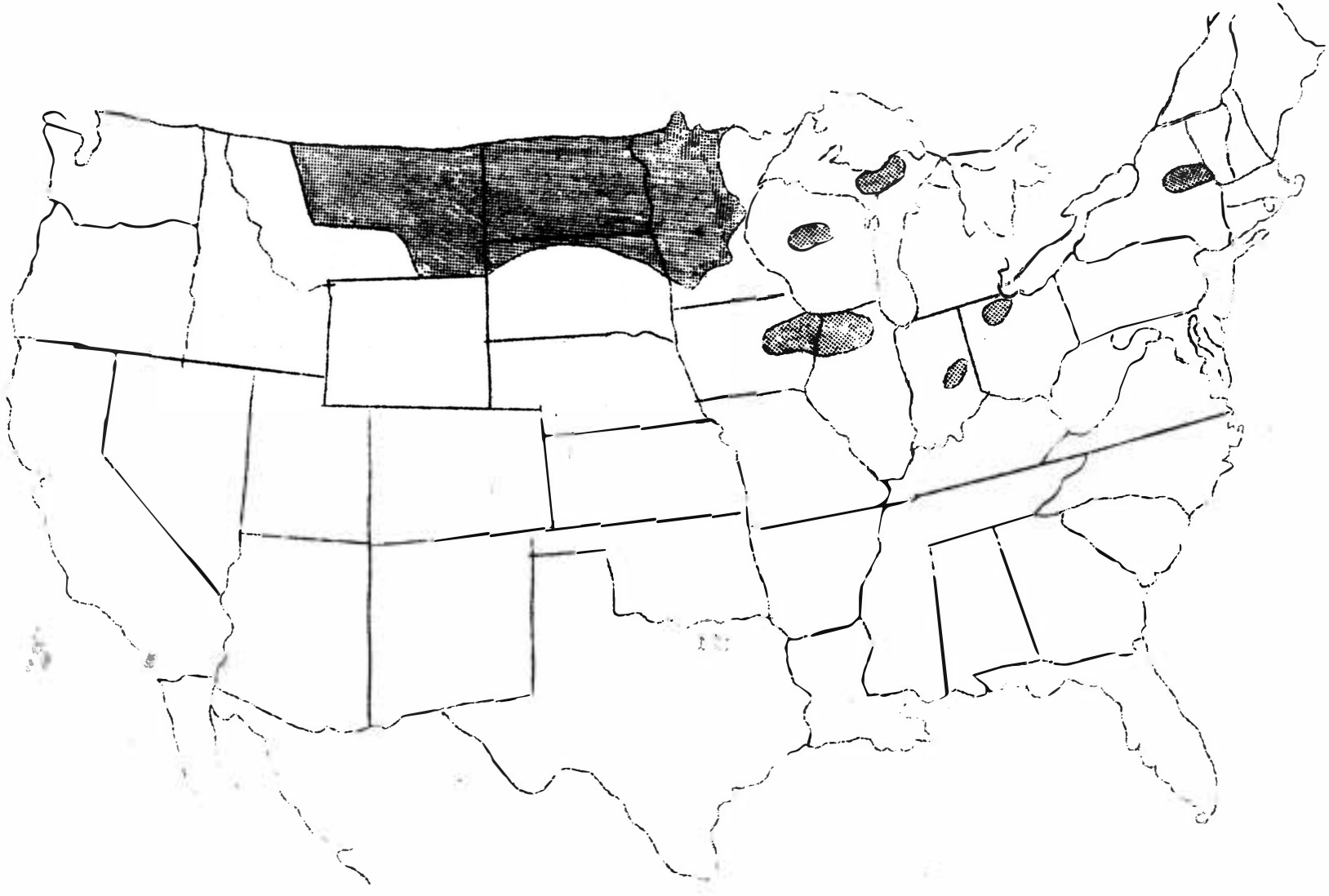

FIGURE 20. Primary Selling Area of Seed Dealers Located in Eastern North Dakota, 1957

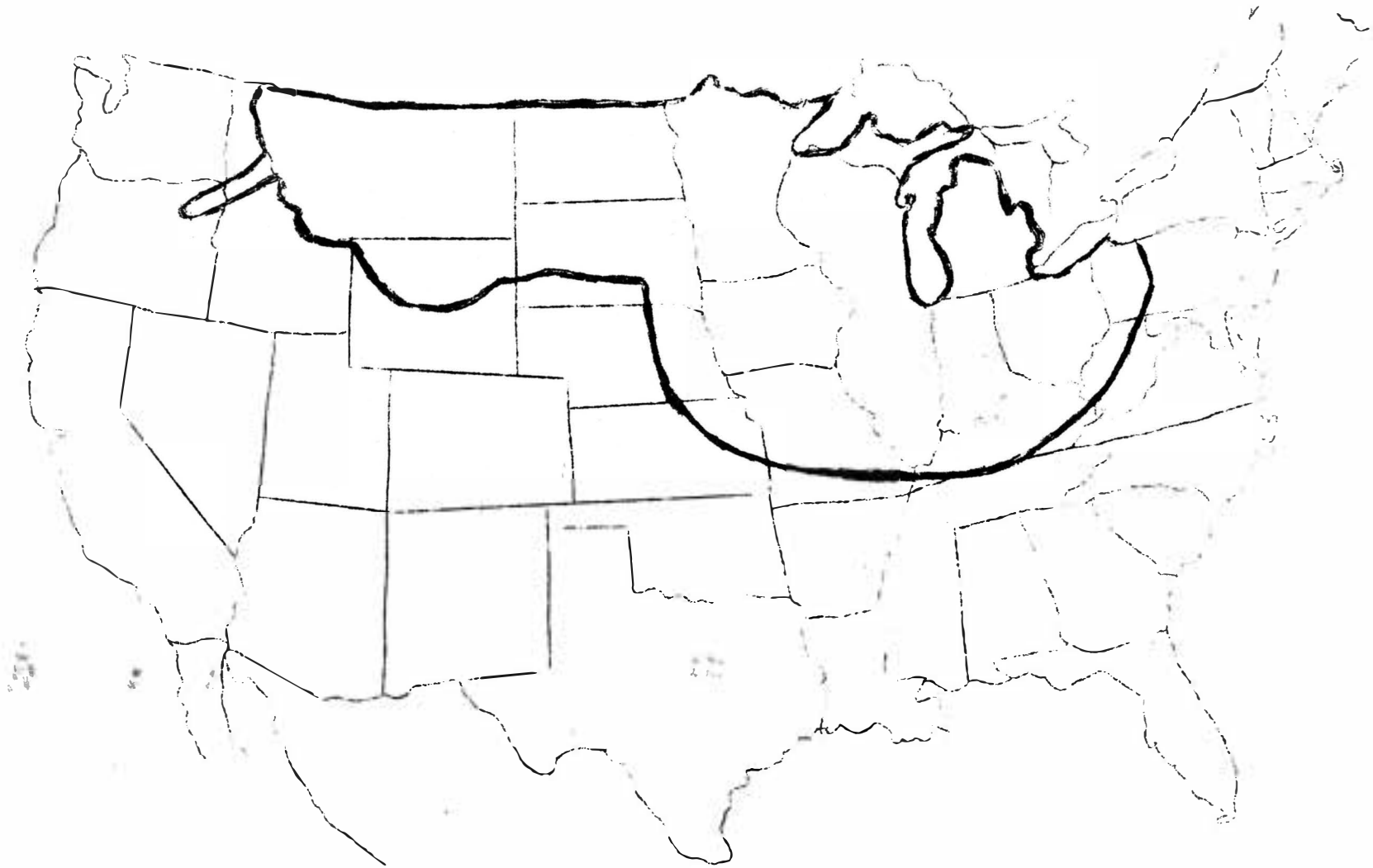

FIGURE 21. Primary Selling Area of Seed Dealers Located in Western North and South Dakota, Montana, and Northeastern Wyoming, 1957

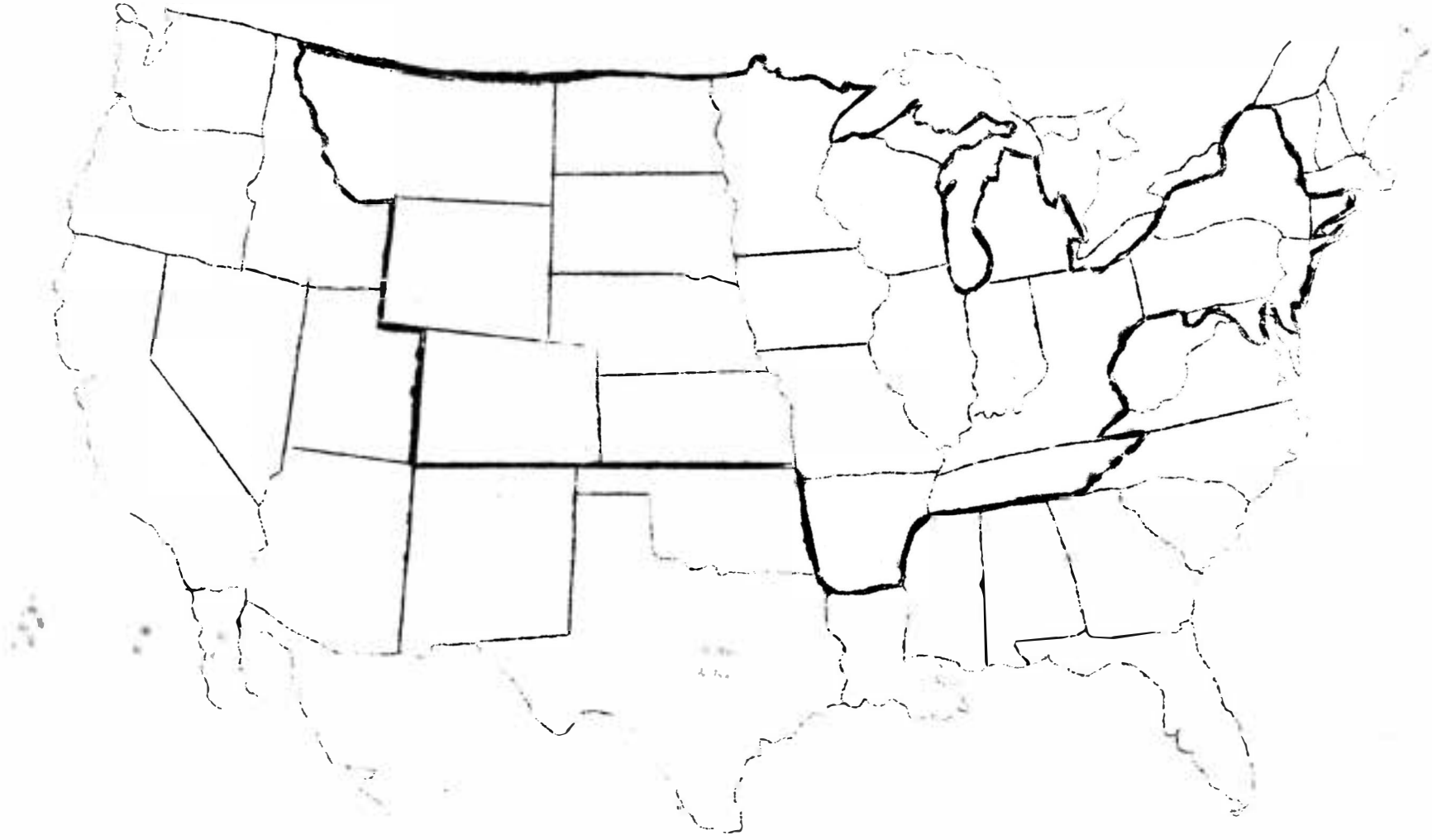

FIGURE 22. Primary Selling Area of Seed Dealers Located in Central Wyoming, 1957

analysis was performed, showing the relative effects of California price and Northern supply on Northern price.[20] It was found that these two independent variables account for about 74 percent of the variance in the price of Northern alfalfa seed.

Profit

Profit figures given included the gross profits ranging from 15 to 25 percent and net profits ranging from 0 to 10 percent. Two firms indicated that they were losing money on alfalfa in 1957 and normally made very little, handling the commodity only as a convenience to their customers. These firms handled other seeds and chemicals.

Eight firms indicated that the profit margin they were getting was sufficient, the remaining firms stating that they needed greater profits to get an adequate return on their capital investment and labor. Twenty-five percent gross profit and 10 percent net profit were given as ideal profit figures.

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[20] The formula showing the relationship between these variables is:

$$X1_c = 58 + (-.297)\, X_2 + .774\, X_3$$

X_1 is the dependent variable representing the price of Northern alfalfa seed, X_2 is an independent variable representing Northern supply of alfalfa seed, and X_3 is the independent variable representing the price of California seed. The two independent variables produce beta coefficients that total .7411 and an R^2 value of .74, indicating little indirect effect present.

Trade Barriers

Hindrances to trade within the state included the following:

1. Uncertainty of production.
2. Farmer-neighbor selling. It was estimated by one seed dealer that only 20 percent of the seed produced goes through regular marketing channels.
3. Price-cutting and low quality merchandise by irresponsible seed dealers.
4. Tax-free cooperatives.
5. Canadian seed imports.

Discouraging elements for trade out-of-state included the USVO tagging practices which is considered a barrier to dealings with non-VO dealers. Variation in seed laws in the several states was considered either a barrier or a nuisance by the seed dealers interviewed. Lack of coordination in certification programs was another trade barrier agreed upon by most of the dealers contacted. Poor enforcement of seed laws was suggested by three seed dealers as a major trade barrier in selling in 1957. The desire for more and stricter seed inspections by state agencies was stated several times. Prejudice for locally-grown seed did not seem to be a hindrance to sales made by the dealers interviewed.

Soil Bank Effects

Generally speaking, the Soil Bank Program of the Federal government increased alfalfa sales by varying amounts. Most affected were retail sales, some increases being as large as 200 percent. The increase in sales, due to this factor, varied between five and 10 percent on the average.

Sales Changes

During the past five years, certified alfalfa sales experienced by 14 reporting seed firms in the Northern area have increased two-fold (Table 5).

The records of the Verified Origin Service of the United States Department of Agriculture were made available for this study. The seed shipped by 39 South Dakota seed dealers during the fiscal years 1955 to 1957 was reviewed in an attempt to determine the major out-of-state consumption areas (Tables 6 and 7). The seeds shipped out of the state of South Dakota through the Verified Origin Service varied between 30 and 50 percent of the total South Dakota production in 1956 and 1957, respectively. Although these records give us an incomplete picture, some notion concerning the movement of seed out of the state is afforded.

TABLE V. SALES OF NORTHERN, CERTIFIED, AND OTHER ALFALFA SEED BY 14 SEED FIRMS IN THE NORTHERN AREA, 1947-1957

Years	Number of Companies	Northern Alfalfa Seed		Certified Alfalfa Seed		Other Alfalfa Seed	
		pounds	percent	pounds	percent	pounds	percent
1947	1	50,000	100.0	---	--	---	--
1948	3	538,985	100.0	---	--	---	--
1949	3	730,447	100.0	---	--	---	--
1950	4	2,357,061	100.0	---	--	---	--
1951	4	1,081,818	100.0	---	--	---	--
1952	6	3,714,112	88.9	305,000	7.3	158,000	3.8
1953	6	2,794,871	81.0	389,000	11.3	268,000	7.7
1954	10	5,313,760	78.4	801,760	11.8	664,000	9.8
1955	11	7,272,663	78.7	1,254,700	13.6	711,000	7.7
1956	11	6,501,517	78.7	1,016,000	12.3	746,000	9.0
1957	14	5,508,485	75.2	1,217,670	16.6	599,900	8.2

TABLE VI. ORIGIN OF ALFALFA SEED SHIPPED BY 39 SOUTH DAKOTA SEED DEALERS IN FISCAL YEARS, 1955-1956 AND 1956-1957*

Seed origin	1955-1956		1956-1957	
	pounds	percent	pounds	percent
South Dakota	3,259,917	82.8	1,597,519	83.3
North Dakota	199,144	5.1	35,416	1.9
Wyoming	234,239	5.9	184,724	9.6
Montana	182,290	4.6	17,752	.9
Nebraska	59,569	1.6	81,705	4.3
Total	3,935,159	100.0	1,917,116	100.0

TABLE VII. DESTINATION OF ALFALFA SEED SHIPPED BY 39 SOUTH DAKOTA SEED DEALERS TO DEALERS IN OTHER STATES IN FISCAL YEARS, 1955-1957*

Seed destination	1955-1956	1956-1957
	Percent	
In-state	5.5	7.1
North Dakota	1.8	.6
Nebraska	3.1	.9
Minnesota	15.4	14.7
Wisconsin	.5	1.8
Iowa	26.6	52.5
Missouri	33.9	21.5
Illinois	3.6	.9
Indiana	3.7	--
Unknown**	5.9	--
Total	100.0	100.0

*Information derived from records of Verified Origin Service, Minneapolis, Minnesota Office.

**Typographical errors in Verified Origin Service records.

Sales Problems

Problems in selling included comments on the Federal Soil Bank Programs. The delayed information concerning federal soil programs does not allow the seed dealer to stock in accordance with future demand. The Federal program also induces the farmer to purchase the cheapest seed available without concern for quality.

Big company control of price in 1957 caused considerable hardship on some of the area seedsmen. Prices were held up in purchasing and prices were dropped in selling.

One seedsman indicated that it was a nuisance practice for the farmer to want to barter his alfalfa seed for other goods.

Certified Seed

Demand Changes

Certified seed generally has not been in great demand in the Northern four-state area, according to most of the seedsmen interviewed. Alfalfa seed demands in other states have been affected in varying degrees. This has not been true in Eastern states according to a study at Cornell University. The demand for certified seed is steadily increasing (Figures 23 and 24).

Generally, it does not cost the seed dealer any more money to handle certified alfalfa seed than non-certified, except when handl-

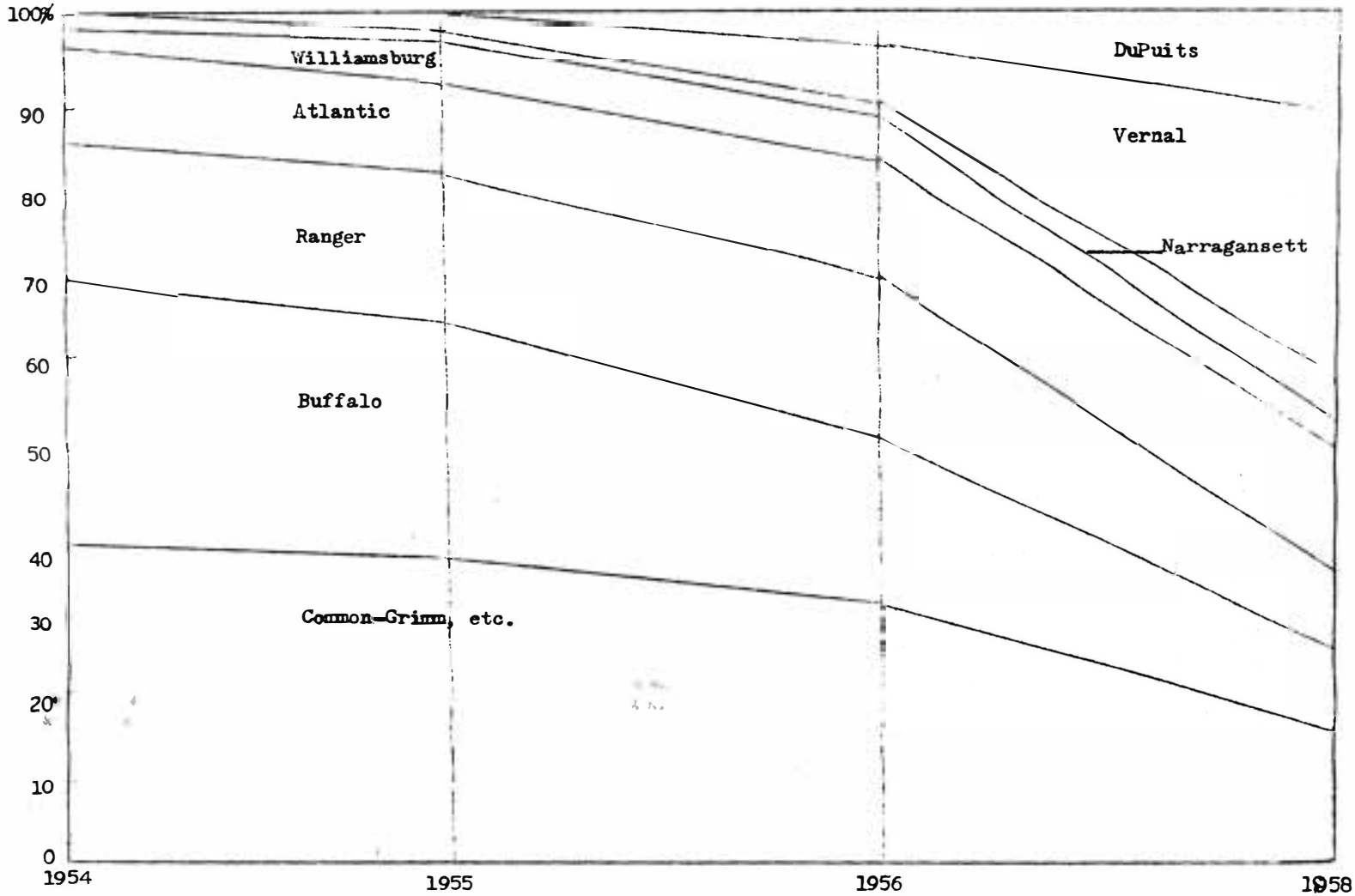

FIGURE 23. Proportionate Seed Usage of Alfalfa Varieties in the Southern Subregion Including New Jersey, Maryland, Delaware, West Virginia and Southern Pennsylvania. Survey Data for 1954 and 1955. Predicted Usage for 1956 and 1958.

•"Usage of Seed of Improved Forage Crop Varieties in the Northeast," op. cit., p. 4.

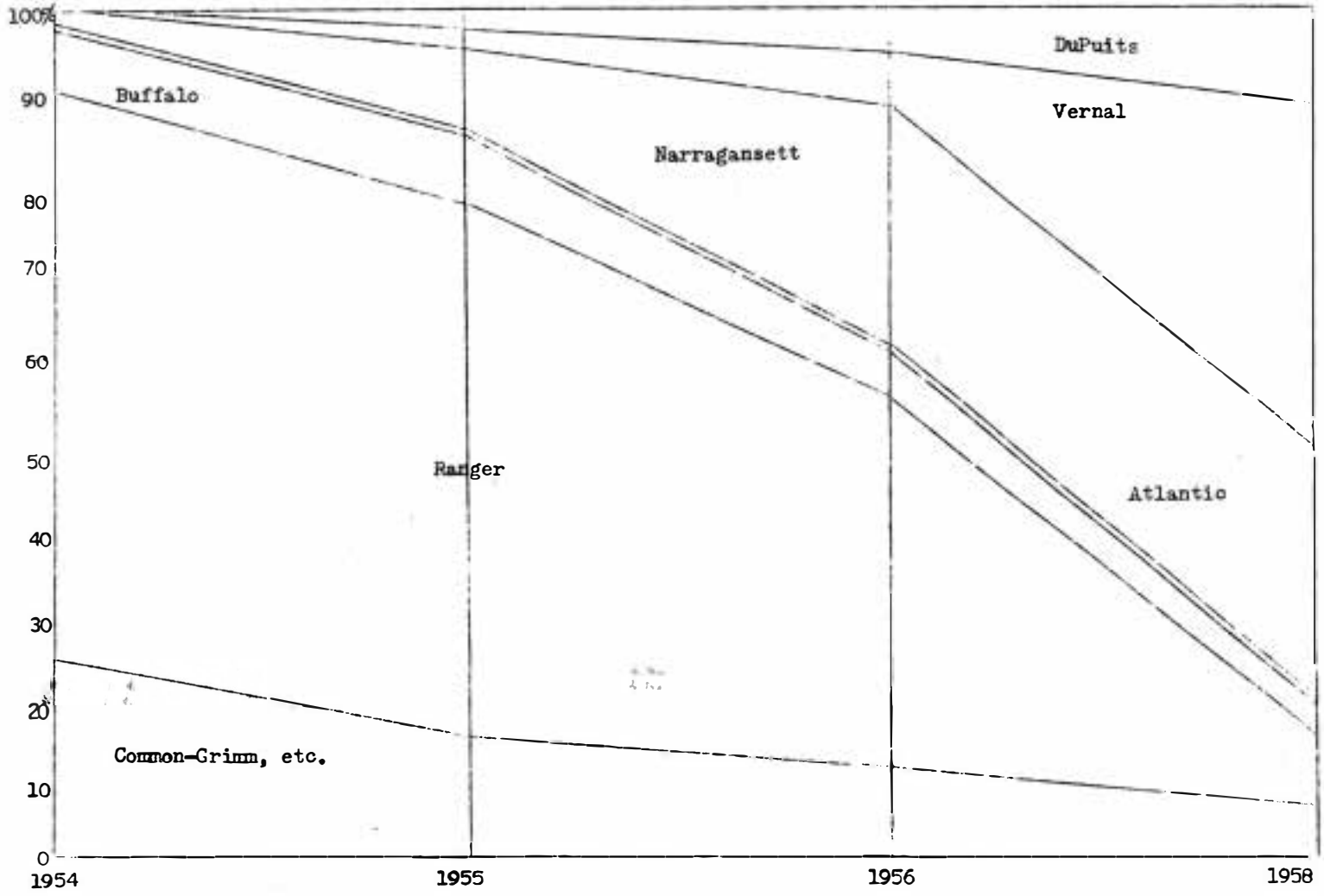

FIGURE 24. Proportionate Seed Usage of Alfalfa Varieties in the Northern Subregion Including New England, New York, and northern Pennsylvania. Survey Data for 1954 and 1955. Predicted Usage for 1956 and 1958.

•Ibid., Page 4.

ing it as a processor, when the general costs may increase from one-half to one cent per pound.

When asked whether branded or unbranded certified seeds sold the best, seed dealers gave mixed opinions. This may be due in part to individual selling experiences where seed dealers may handle only the unbranded or branded type of certified seed.

Current Program

In response to the question of whether the present certification program is in line with other states' programs, over one-third of the seed dealers stated that they didn't know. So little certification has been done in this four-state area that knowledge of the certification program has not been necessary. The major argument presented against the certification program as it is now operated is that certification should be allowed without the state recommendation attached to it. Other comments included: (1) it should be permissible to bulk several lots of the same variety into a single lot, (2) inspectors should personally draw the sample for testing instead of letting the farmer or processor send in the sample, (3) standards should be higher for purity and germination, (4) "Blue-tagging" should be done by an inspector and (5) quicker service on tests for certified seed is desired even if it costs more.

Certified Northern Production

Seed dealers were divided in their opinions as to whether or not the Northern area farmer could profit by growing certified seed under present regulations. Those who stated that the farmer would not profit mentioned that they could only give him a small premium at the present time for certified seed over the Northern varieties now produced. Those dealers indicating that the farmer would profit by growing certified seed stated that such a premium large enough to make it worth while could be offered to the farmer, and looked for certified alfalfa seed production to be an enterprise of the future for the Northern growers.

CHAPTER V

THE MARKET

Objective

This chapter is devoted to achieving the second objective of this study: "Define and investigate the major markets for Northern alfalfa seed."

The investigation of the market included (1) determination of the present extent of the Northern alfalfa seed market, (2) what changes have occurred in that market, (3) the general nature of the market in terms of demand, price, and quality, and (4) predicting the future of this market for Northern alfalfa seed.

Definition

Primary Consumption Area

The major alfalfa hay acreages are indicated in Figure 12 of Chapter III. This acreage concentration substantiates an unofficial conjecture that over 80 percent of the alfalfa seed marketed in the United States is consumed in the states of Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York. The other high acreage states in Figure 12 are primary production areas.

This marketing area also represented over 80 percent of the seed sales of 59 companies interviewed in the USDA study (Figure 25).

Figures 19, 20, 21 and 22, summary drawings of selling areas of the seed companies interviewed for this research, further indicate that this primary marketing area appears to be justifiably chosen as a point of study.

Procedure

In order to obtain information on the market in this and surrounding areas, a mail questionnaire was sent to all the county agents and a large number of seed dealers operating in this major market area. In addition, some farmers who bought alfalfa seed on a wholesale basis also were contacted.

Permission to contact the county agent was obtained from nine of the ten state extension directors in the area. One extension director refused to cooperate in this study. Accordingly, 738 questionnaires were sent to county agents in this nine-state area. The returns from county agents were good, 77 percent of the county agents responded.

Questionnaires were also mailed to 1824 seed dealers and consumers in this primary market area. In addition, 551 questionnaires were mailed to seed dealers in the Northern area. Another 197 questionnaires were sent to large wholesale distributors outside of these two areas. The total number of questionnaires sent to seed dealers

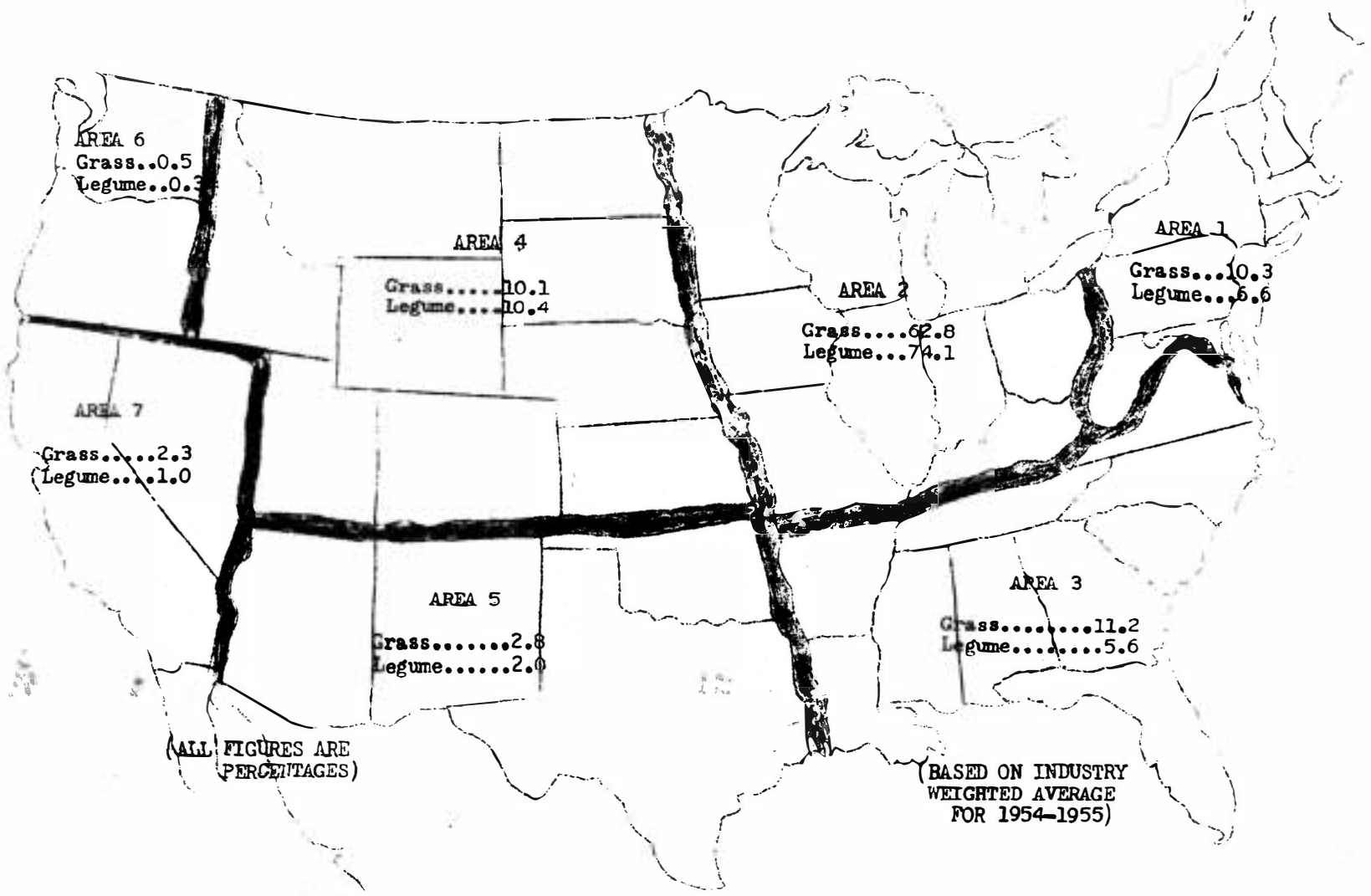

FIGURE 25. Grass and Small-Seeded Legume Seed Delivered to Various Geographic Areas by Wholesalers in the North Central Region*

*"Seed Marketing Channels for Grass and Small-seeded Legumes in the North Central States, 1954-55," op. cit., p. 24.

TABLE VIII. QUESTIONNAIRE RETURNS FROM COUNTY AGRICULTURAL AGENTS, BY STATE

State	County Agents	Returns	Percent
Nebraska	83	74	89
Minnesota	91	73	80
Iowa	100	85	85
Wisconsin	71	57	80
Illinois	99	68	69
Michigan	83	53	64
Ohio	88	65	74
Pennsylvania	67	49	73
New York	56	41	73
Total	738	565	77

TABLE IX. QUESTIONNAIRE RETURNS FROM SEED DEALERS, BY AREA

Area	Dealers	Returns	Percent
Northern Area	551	165	33
Major Market Area	1824	592	32
Illinois	239	76	31
Indiana	103	34	30
Iowa	266	95	28
Michigan	134	58	43
Minnesota	476	125	26
Nebraska	112	45	40
New York	56	13	23
Ohio	132	42	32
Pennsylvania	96	38	40
Wisconsin	210	66	31
Outlying Area	197	61	31
Total	2572	818	32

was 2572. Returns received from the seed dealers numbered 818 or about 32 percent of those questioned responding. A more detailed breakdown on questionnaire returns is contained in Tables 8 and 9.

County Agent Survey

Pilot Survey

To test the questionnaire, the county agents in the state of Nebraska were mailed questionnaires separately. On the basis of their responses two questions were changed on the original questionnaire form. In the following analysis, Nebraska is separated from the other states' responses wherever these questions arise.

Existence of Market

Whether or not alfalfa seed was grown in the county represented by the agricultural agent and whether or not Northern alfalfa seed was used during the past five years in that area were questions used to determine the existence of a market for Northern seed in each county. All but five of the 565 respondents indicated that alfalfa seed was sold in their area. Five hundred two of these county agents indicated that the farmers had bought and sown Northern alfalfa since 1952. Fifty-five county agents stated that Northern seed had not been used, five did not know whether it had been used or not, and three agents failed to respond on this question.

Change in Market

The Nebraska county agents were questioned whether or not the farmers in their areas were using more Northern alfalfa seed now than in 1952. Thirteen agents believed that the farmer was using more, while fifty-six stated they were not using more Northern seed than five years ago. Five of the Nebraska county agents stated they did not know the quantity of Northern seed relative to the 1952 consumption.

The county agents in the other states were asked the question, "In your opinion, are the farmers in your area using more, less, or the same amount of Northern alfalfa seed this year than five years ago?" One hundred forty-nine county agents believed that more Northern alfalfa seed was being used now primarily because the farmer had become acquainted with the attributes of hardy seed. A more careful breakdown of what caused the change in usage of more Northern alfalfa seed is contained in Table 10. Some 258 agents believed that less Northern alfalfa seed was being used now than five years before. The cause for this change was the acquaintance of the farmer with the attributes of certified seed. Other responses are listed in Table 11.

TABLE X. RESPONSES OF COUNTY AGENTS REPORTING WHY MORE NORTHERN ALFALFA SEED WAS USED IN THEIR COUNTIES IN 1957 THAN IN 1952, BY STATE

Response	Total	Nebr.	Minn.	Iowa	Wisc.	Mich.	Ill.	Ohio	N.Y.	Penn.
					Number					
Publicity	11	1	2	0	3	0	3	0	1	1
Poor results with non-hardy seed	18	4	2	2	2	2	0	1	1	4
Response to recommendations	7	0	0	2	1	1	0	3	0	0
Not adaptable	0	0	0	0	0	0	0	0	0	0
Acquaintance with hardy seed	41	4	1	9	8	6	3	8	0	2
Local production low	3	1	1	0	0	0	1	0	0	0
Lower price	5	0	0	4	0	0	1	0	0	0
Substitute of alfalfa for other hay seed	4	0	1	1	0	2	0	0	0	0
Greater use of alfalfa	22	0	5	7	2	2	3	1	1	1
More short-term rotation	8	0	1	2	1	2	1	1	0	0
Use of blends	1	0	1	0	0	0	0	0	0	0
Northern seed is high quality	1	0	0	0	0	1	0	0	0	0

TABLE XI. RESPONSES OF COUNTY AGENTS REPORTING WHY LESS NORTHERN ALFALFA SEED WAS USED IN THEIR COUNTIES IN 1957 THAN IN 1952, BY STATE

Response	Total	Nebr.	Minn.	Iowa	Wisc.	Mich.	Ill.	Ohio	N.Y.	Penn.
					Number					
Publicity	6	0	2	1	0	0	2	0	0	1
High local production	9	8	0	1	0	0	0	0	0	0
Greater availability of California seed	33	2	10	5	3	3	7	1	1	1
Poor results with non-hardy seed	12	0	1	1	1	1	0	1	4	3
Response to recommendations	21	5	2	0	4	0	3	6	1	0
Not adaptable	4	1	0	0	0	0	0	0	2	1
Acquaintance with certified seed	74	4	6	4	7	4	7	9	19	14
Poor quality Northern seed received in past	6	2	2	1	0	0	0	1	0	0
Lower price	12	2	4	2	0	4	0	0	0	0
Substitute of alfalfa for other hay seed	3	0	1	1	0	0	0	0	0	1
More short-term rotation	4	0	2	2	0	0	0	0	0	0
Introduction to wilt-resistant varieties	3	0	0	0	0	1	0	2	0	0
Availability of Southern seed	1	0	0	0	0	1	0	0	0	0
Decrease in farm operations	9	0	2	0	0	2	4	0	1	0
Variety prejudice	12	0	0	0	0	4	0	0	0	8

Factors Influencing Demand

In response to the question, "What influences the farmer in your area the most in deciding what type of alfalfa seed to purchase?", the county agents many times checked two or three factors. Each of these checks were given equal weight in the analysis, and the following totals were obtained; county agent recommendations, 259; experiment station recommendations, 198; advertising, 44; past experience, 133, price, 100; seed dealer's salesmanship, 145; neighbors' experience, 14; dehydrating process, 1; availability, 4; and nine county agents failed to respond to this question. The county agent felt that he had the greatest influence on farmer alfalfa seed purchases and the experiment station recommendations ran in second place.

Type of Farmer

When questioned as to whether or not the farmer was more price-minded, quality-minded, or indifferent, 328 county agents concurred that the farmer in their area was quality-minded. Some 179 agents felt that the farmer was price-minded, 32 believed that he was indifferent, and 26 did not respond.

Quality Determinants

Asked what the farmer in their county used as a basis of seed quality, 84 agents listed brand name; 228 stated they used the tag analysis, only 7 believed they used color; 67, price; 223, recommendations;

7, variety name; and 29 failed to respond.

Usages

As suspected, hay was the most prominant purpose for which alfalfa was grown in the several counties. Pasture usage ranked in second place, soil building in third place, some response was indicated for milling purposes and seed production was in last place. Twenty agents failed to respond to the question.

Asked whether Northern alfalfa seed accomplished the purpose for which most of the alfalfa was grown in their area, 325 agents answered affirmatively. One hundred fifty-two county advisers stated that Northern seed did not accomplish this purpose; the major reason given was that the seed was of unknown quality. Twenty-three agents did not know the answer to this question and 65 advisers did not respond. Other reasons given in their relative order of importance were: it is not certified; it is not adaptable; it gives a poor yield; it is not wilt-resistant; it is not hardy; it is too costly; and it is not advertised enough.

The growing of mixtures, whether pre-mixed by seed companies or mixed later by farmers, appears to be a common practice in the major market area.

Varieties Used and Recommended

The most heavily planted variety in both certified and uncertified state is Ranger alfalfa. County agents in some states gave "common" as the most heavily planted alfalfa, while those in states close to the Northern area reported Grimm as an alfalfa planted in their state. Those in the Eastern states suggested Narragansett and DePuits as their most heavily planted alfalfa, exceeding in some instances Ranger plantings. A chart indicating the varieties most heavily planted in each of the states is contained in Table 12.

Varieties of alfalfa that were recommended by county agents in 1957 were Ranger and Vernal for most states with Buffalo being mentioned as a recommended variety by over half of the states. Narragansett and DuPuits were most heavily recommended in New York and Pennsylvania. Common alfalfa was recommended in most of the states as a soil builder. A further breakdown of the varieties recommended by agricultural advisers is given in Table 13.

Seed Dealer Survey

The Questionnaire

Excepting the recommendations asked of the county agents, the seed dealers were asked the very same questions posed to the county agents. In addition to these, questions concerning price rela-

TABLE XII. COUNTY AGENT REPORT OF VARIETIES OF ALFALFA MOST HEAVILY PLANTED IN 1957, BY STATE

Variety	Nebr.	Minn.	Iowa	Wisc.	Mich.	Ill.	Ohio	N. Y.	Penn.
Certified									
Ranger	x	x	x	x	x	x	x	x	x
Buffalo	-	-	-	-	x	-	x	-	x
Ladak	-	-	-	-	-	-	-	-	-
Grimm	-	-	-	-	-	x	x	-	-
Cossack	-	-	-	-	-	-	-	-	-
Atlantic	-	-	-	-	-	-	x	-	-
Narragansett	-	-	-	-	-	-	-	x	x
DuPuits	-	-	-	-	-	-	-	-	x
Lehontan	-	-	-	-	-	-	-	-	-
Hardistan	-	-	-	-	-	x	-	-	-
Vernal	-	x	x	x	-	x	-	-	x
Viking	-	-	-	-	-	-	-	-	-
Terraverde	-	-	-	-	-	-	-	-	-
Uncertified									
Blends	-	x	-	-	-	-	-	-	-
Ranger	x	x	x	x	x	x	x	x	x
Buffalo	-	-	-	-	x	-	-	-	-
Ladak	x	-	-	-	-	-	-	-	-
Grimm	-	x	x	x	-	x	-	-	-
Cossack	-	-	x	-	-	-	-	-	-
Common	x	x	x	-	x	x	x	-	x

TABLE XIII. VARIETIES OF ALFALFA RECOMMENDED BY COUNTY AGENTS IN 1957, BY STATE

Variety	Nebr.	Minn.	Iowa	Wisc.	Mich.	Ill.	Ohio	N. Y.	Penn.
Certified									
Ranger	60	56	64	37	52	24	49	9	25
Buffalo	22	0	25	0	48	0	40	0	11
Ladak	0	0	0	0	0	0	0	0	0
Grimm	0	0	0	0	0	1	0	0	0
Cossack	0	0	0	0	0	0	0	0	0
Atlantic	0	0	6	0	7	0	23	0	1
Narragansett	0	1	0	0	0	3	0	36	7
DuPuits	0	2	0	0	4	0	0	31	29
Lehontan	0	0	0	0	0	0	0	0	0
Hardistan	1	0	0	0	0	6	0	0	0
Vernal	1	53	57	51	17	46	42	31	35
Viking	0	0	0	0	0	0	0	0	1
Terraverde	0	0	1	0	0	0	0	0	0
Uncertified									
Blends	0	0	0	0	0	0	0	0	0
Ranger	0	0	0	0	0	0	0	0	1
Buffalo	0	0	0	0	0	0	0	0	0
Ladak	22	4	1	1	0	1	0	0	0
Grimm	1	11	12	4	0	12	1	0	0
Cossack	1	0	4	3	0	0	0	0	0
Common	1	1	8	5	23	5	5	0	0

tionships, the future of Northern seed, and a more careful analysis of the demand factors, were included as an additional set of questions that the seed dealer could better answer. For the purposes of this study the United States was divided geographically into three separate sections. One section included the four-state Northern area, another section included the primary market area covered by the county agent survey, and all of the remaining parts of the United States were considered the outlying or fringe area. It was believed that the answers to the questions posed may vary in these different areas.

Existence of Market

In the Northern area, 163 of 165 respondents stated that alfalfa was grown in their area. Of this total, 159 stated that Northern alfalfa had been bought and sown during the past five years.

In the outlying area, 59 respondents stated that alfalfa was grown in their areas while two answered negatively. Only 21 of this total stated that Northern alfalfa seed had been grown during the past five years.

In the major buying area, 575 of 592 respondents stated that alfalfa was grown in their areas. Five hundred fifty-one or 93 percent of the respondents stated that Northern alfalfa seed had been bought and sown since 1952.

Change in Market

Sixty-six of the 165 respondents in the Northern area stated that the farmers in that area were using more Northern alfalfa seed than before. The reason for this behavior was due to the greater use of alfalfa. Thirty-seven of the respondents indicated that there was less Northern seed being used in the Northern area because of the farmers' acquaintance with the attributes of certified alfalfa seed. Fifty-nine of the respondents believed there had been no change in the amount of alfalfa seed used, and three did not answer this question.

Only four seed dealers in the outlying area believed that the farmers were using more Northern alfalfa seed in their area than before. The reason for this greater usage was attributed equally to response to recommendations and acquaintance with hardy seed.

Seventeen of the 61 respondents in the outlying area believed that less Northern alfalfa seed was being used because of the acquaintance with certified seed by the farmer in their area. Seventeen dealers stated that there had been no change in the amount of alfalfa seed used, and twenty-three dealers did not respond to this question.

One hundred nineteen of the 592 respondents in the primary market area believed that more Northern alfalfa was being used this year than was being used five years ago. This practice was caused primarily by the farmers' acquaintance with hardy seed.

Three hundred twenty-seven or 55 percent of the dealers answering stated that less Northern alfalfa seed was being used now than five years ago. Three major reasons were given, in the order of their importance. The acquaintance of the farmer with certified alfalfa seed ranked as the major cause for less use of Northern alfalfa seed in their areas, with lower price and the greater availability of California seed ranking next in order. Some 117 dealers in the major market area indicated no change in the use of Northern alfalfa now as compared to five years ago. Thirty dealers did not answer this question.

A more detailed breakdown of the responses of the seed dealers to this question is contained in Tables 14 and 15.

Factors Influencing Demand

In the Northern area, the seed dealers rate the past experience of the farmer as the most important demand factor. Others listed in their order of importance are price, county agent recommendations, seed dealer salesmanship, experiment station recommendations, and advertising. Five dealers in the Northern area did not respond to this question.

In determining the relative effect each of the factors has on the buying of alfalfa seed by the farmer, price was rated as a moderate influence, quality a great influence, advertising having little influence,

TABLE XIV. RESPONSES OF SEED DEALERS REPORTING WHY MORE NORTHERN ALFALFA SEED WAS USED IN THEIR MARKETS IN 1957 THAN IN 1952, BY AREA

Response	Total	Northern	Major Market	Outlying Market
Publicity	3	0	3	0
Local production high	5	3	2	0
Poor results with non-hardy seed	6	2	4	0
Response to recommendations	1	0	0	1
Acquaintance with certified seed	6	1	4	1
Acquaintance with hardy seed	37	6	31	0
Local production low	3	1	2	0
Lower price	13	5	0	0
Substitute for other seed for hay	7	0	7	0
Greater use of alfalfa	17	10	7	0
More short-term rotation	1	0	1	0
Use of blends	1	1	0	0
Introduction of wilt-resistant varieties	2	0	2	0
Availability of Southern seed	4	0	4	0
Northern is of high quality	11	7	4	0
Soil Bank program	8	8	0	0

TABLE XV. RESPONSES OF SEED DEALERS REPORTING WHY LESS NORTHERN ALFALFA SEED WAS USED IN THEIR MARKETS IN 1957 THAN IN 1952, BY AREA

Response	Total	Northern	Major Market	Outlying Market
Publicity	13	1	12	0
Local production high	2	1	0	1
Greater availability of California seed	57	4	51	2
Poor results with non-hardy seed	9	2	7	0
Response to recommendations	22	3	18	1
Not adaptable	4	1	2	1
Acquaintance with certified seed	141	11	127	3
Poor quality "Northern" received in past years	2	0	2	0
Lower price	65	5	60	0
Substitute for other seed for hay	10	1	9	0
More short-term rotation	1	0	1	0
Decrease in farm operations	3	1	2	0
Use of blends	3	1	2	0
Introduction of wilt-resistant varieties	3	0	3	0
Variety prejudice	3	0	3	0
Availability of Southern seed	1	0	1	0
Soil Bank program	1	0	1	0

county agents and experiment stations having moderate influence, past experience having great influence, and the seed dealer salesmanship having a moderate influence.

In the outlying area, the experiment station recommendations were listed as the most influential factor in determining demand. Second to this was county agent recommendations, (3) past experience, (4) seed dealer salesmanship, (5) advertising, and last of all, price.

Price was listed as an effect having moderate influence on the volume of alfalfa seed purchased by the farmer in the outlying area. Quality was rated as a great influence, advertising and county agents a moderate influence, experiment stations and past experience a great influence, and seed dealer salesmanship was rated as a moderate influence on the buying of alfalfa seed by the farmer in the outlying area.

Experiment station recommendations were ranked as the most influential factor determining the type of alfalfa seed purchased in the major buying area. Ranking a close second was past experience, seed dealer salesmanship, price, county agent recommendations, advertising, neighbors' experience, and availability.

Price had a moderate to great effect on the purchase of alfalfa seed by the farmer in its major market area, quality had a great to moderate effect, advertising moderate or little effect, county agents moderate or little effect, experiment stations moderate to great effect,

past experience great to very great effect, and seed dealer salesmanship a moderate to great effect on the purchase of alfalfa seed by the farmer.

Type of Farmer

Sixty-one of the 165 dealers answering believed that the Northern area farmer is mostly price-minded, 83 of the dealers stated that he is quality-minded, while ten dealers believed the farmer is indifferent. Eleven dealers in the Northern area did not answer this question.

In the outlying area over half of the dealers believed that the farmer is quality-minded with the price-minded and indifferent farmer ranking in that order. Seven dealers did not respond to this question.

Some 359 seed dealers located in the primary market area felt that the farmer was a quality-minded individual. One hundred forty-seven dealers disagreed by saying that the farmer was mostly price-minded. Seventeen indifferent responses were recorded and 69 dealers failed to answer.

Quality Determinants

In the Northern, outlying, and major buying areas tag analysis was the most common basis used for seed quality by the farmer. Recommendations ranked in second place in all the areas. Price was in third place in the Northern and outlying areas, but brand name

followed recommendations in the major market area, the reverse being true in the fourth place ranking. Color and variety name ranked last in order for all areas as a basis for quality by the farmer.

Usages

In the Northern area, hay is the primary end product of alfalfa planting, with pasture, seed, and soil building ranking next in order of importance. One hundred forty-five of the 165 respondents believed that Northern alfalfa seed accomplished this purpose effectively. Of the ten who disagreed with this conclusion, unknown quality, lack of certification, poor yield, and inadequate advertising were listed as its failures. Ninety-nine dealers stated that it was a common practice for the farmer to grow other legumes and grasses along with alfalfa in their area, while 58 dealers did not agree.

In the outlying area the prominent use of alfalfa is for hay, with pasturing and seed production tying for second place. Seventeen of the dealers stated that Northern alfalfa seed accomplished their purpose effectively while sixteen stated that it did not. Of those replying negatively to this question, the reasons cited were nonadaptability, poor yield, not certified, too costly, and unknown quality. Over half of the dealers stated that it was not a common practice for the farmer to plant mixtures in their area.

Hay is the dominant use of alfalfa in the major buying area with

pasture, soil building, seed production, and milling ranking in that order. Nearly 65 percent of the seed dealers responding stated that Northern alfalfa seed accomplished the major usage of alfalfa in that area. Of the 25 percent who stated that Northern seed did not accomplish this purpose effectively, 38 said that Northern failed because of unknown quality; 29, because it is not certified; 2, because of poor yield; 18, because it is too costly; 7, because it is not wilt-resistant; 3, because it is not advertised enough; and 21, because they felt that Northern seed was not adaptable and was not hardy. Nearly 80 percent of the seed dealers stated that it was a common practice for the farmer to grow other legumes and grasses along with alfalfa in the primary marketing area.

Varieties Used

By far the most heavily planted alfalfa in the Northern area was Grimm, with Ranger and Cossack following in order of importance. In the major market area, Ranger alfalfa exceeded all others by a considerable margin as the most heavily planted alfalfa. Vernal and common ranked next in order of importance. In the outlying area, common seed was the most heavily planted, with Buffalo and Ranger in second and third place, respectively. A more detailed breakdown is furnished in Table 16.

TABLE XVI. SEED DEALER REPORT OF VARIETIES OF ALFALFA MOST HEAVILY PLANTED IN 1957, BY AREAS

Variety	Northern	Major Market	Outlying Market
Certified			
Ranger	28	329	6
Buffalo	0	19	9
Ladak	2	0	0
Grimm	2	8	0
Cossack	1	7	0
Atlantic	0	0	5
Narragansett	2	2	1
DuPuits	0	7	1
Lehontan	0	0	3
Hardistan	0	0	0
Vernal	0	45	0
Viking	0	0	1
Terraverde	0	3	0
Uncertified			
Blends	1	3	0
Ranger	13	18	5
Buffalo	0	4	0
Ladak	7	0	3
Grimm	51	16	0
Cossack	23	4	0
Common	8	43	13

Price Relationship

In the Northern area, 79 seed dealers indicated that their customers would pay no more for certified seed than for Northern.[21] Only three dealers indicated that customers would pay more for Northern seed than certified. Of 83 dealers indicating that a price differential would be paid by the farmer for certified over Northern, the premium that would be paid by the farmer for certified seed averaged 4.0 cents.

Thirty-eight dealers in the outlying area indicated that they would pay no more for certified than for Northern. No dealer believed that the farmer would pay more for Northern than certified. Of 23 dealers who believed that certified seed would command a premium over Northern, 4.7 cents was the average amount believed that the farmer would pay.

In the major market area, twenty-three dealers indicated that the farmer in their area would pay more for Northern seed than for certified. Two hundred dealers indicated that they would pay nothing more for certified than Northern. Sixty-two percent of the dealers indicated a price differential existing between certified and

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[21] "Certified seed" from the West can generally be interpreted as the Ranger variety.

Northern seeds. The average premium paid for certified over Northern in the major market area would be 4.4 cents per pound.

Future of Northern Seed

One hundred thirty-one of the 165 responding seed dealers in the Northern area believed that there would be a future market for Northern alfalfa seed in their area because of Northern's hardy characteristics. Only 12 dealers felt that there would not be, two of them replying that certified is superior seed.

In the outlying area, 36 dealers felt that there would not be a market in the future because of the unknown quality of Northern alfalfa seed. Ten dealers felt that there would be a future for Northern seed in their area because it is hardy and will not winter kill.

Sixty-one percent of the seed dealers in the major market area concluded that there will always be a future for Northern seed in their area. The most prominant reason for this is because of the farmers' faith in the hardiness of the seed from this area. Approximately 20 percent of the dealers felt that there would not be a future market for Northern seed, due to the increased use of certified seed in their area.

These reasons are listed in tabular form on Tables 17 and 18.

TABLE XVII. REASONS SEED DEALERS FEEL THAT A MARKET FOR NORTHERN SEED WILL ALWAYS EXIST IN THEIR SELLING AREA

Response	Total	Northern	Major Market	Outlying Market
Northern is of high quality	47	14	33	0
Brand name sells	2	0	2	0
Must be competitive price-wise	60	16	43	1
Good past results	32	13	18	1
Prejudice	43	6	37	0
Recommendations	7	2	5	0
Optimum production at low price	7	5	2	0
Demand for hay is high	7	3	4	0
Good for short rotation	25	5	20	0
Non-hardy	1	0	1	0
Hardy, won't winter kill	107	20	85	2
As a blend only	1	0	1	0
Soil conservation practices	3	3	0	0
Availability	3	2	0	1
Adaptable	8	3	4	1

TABLE XVIII. REASONS SEED DEALERS FEEL THAT A MARKET FOR NORTHERN SEED WILL NOT ALWAYS EXIST IN THEIR SELLING AREA

Response	Total	Northern	Major Market	Outlying Market
Increased use of certified	27	1	20	6
Certified is superior seed	14	2	10	2
Brand name sells	2	0	1	1
Must be competitive price-wise	16	0	15	1
Prejudice	2	0	2	0
Recommendations	12	1	6	5
Non-hardy	3	0	2	1
Hardy, won't winter kill	3	0	3	0
Unknown quality of seed	5	0	5	0
Not adaptable	11	0	3	8
Poor yield	2	1	0	1
Too little publicity	3	0	3	0
Not disease resistant	3	0	2	1
Local production high	4	0	1	3
State law keeps it out	1	0	1	0

Unfavorable Results

Unfavorable past results were listed by eight percent of the seed dealers, indicating unfavorable past experience with Northern alfalfa seed. This small percentage of dealers indicated that Northern seed had too many weeds in it, that it winter killed, and that it was susceptible to disease. Seven percent of the seed dealers listed unfavorable results with certified seed, the only prominant factor mentioned was its winter killing, 34 of the dealers pointing this out.

The unfavorable results experienced with certified and Northern seeds are listed in Tables 19 and 20.

TABLE XIX. UNFAVORABLE RESULTS EXPERIENCED WITH CERTIFIED SEED IN YEARS PRIOR TO 1958, LISTED BY STATES

Types of Results	STATES																					Total
	California	Arizona	Oregon	Idaho	Texas	Montana	Wyoming	North Dakota	South Dakota	Nebraska	Missouri	Iowa	Minnesota	Wisconsin	Illinois	Indiana	Tennessee	Ohio	Michigan	Pennsylvania	New York	
Goes dormant in winter	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Susceptibility to disease	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Winter killed	-	-	-	-	-	1	1	10	7	3	-	1	3	2	1	-	-	1	4	-	-	34
Had too many weeds in it	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2
Coarse, poor quality hay	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	2
Poor stand	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	1	-	4
Poor yields	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
No example	-	-	-	1	-	-	-	-	1	1	-	2	1	1	1	-	1	-	-	1	-	10
Grand total																						55

TABLE XX. UNFAVORABLE RESULTS EXPERIENCED WITH NORTHERN SEED IN YEARS PRIOR TO 1958, LISTED BY STATES

Types of Results	STATES																					Total
	California	Arizona	Oregon	Idaho	Texas	Montana	Wyoming	North Dakota	South Dakota	Nebraska	Missouri	Iowa	Minnesota	Wisconsin	Illinois	Indiana	Tennessee	Ohio	Michigan	Pennsylvania	New York	
Goes dormant in winter	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Susceptibility to disease	-	-	-	-	-	-	-	-	-	1	-	1	1	2	3	2	-	1	1	-	1	13
Slow recovery after cutting or pasturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Winter killed	-	-	-	-	-	-	-	1	2	-	-	1	4	1	-	1	-	2	1	3	-	16
Had too many weeds in it	-	-	-	-	-	-	-	-	-	-	1	7	4	3	1	1	-	-	-	-	-	17
Coarse, poor quality hay	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2
Poor stand	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	2	1	6
Poor yields	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
No example	-	-	-	-	1	-	-	-	2	-	-	1	1	2	1	-	-	-	-	-	-	8
Mislabeling	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Too much hard seed	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Grand total																						68

CHAPTER VI

MARKET EXPANSION

Objective

The purpose of this chapter is to "present some possible solutions for regaining and expanding these (Northern alfalfa seed) markets."

Alternative Future Actions

While interviewing the seed dealers, the following question was posed: "If certified seed from the West is a major problem to the Northern seed industry, what do you think is the best and most practical solution?"

Many varied answers were received. After close analysis, however, these answers appeared to fall into five major categories.

1. Some seed dealers believe that no such problem exists and offered no further comment.
2. Other seed dealers believe that no solution is possible, that we should merely accept these changes as impossible to challenge.
3. Some dealers did not suggest any physical production change but suggested solutions without altering the pro-

duction status quo. These solutions were offered: (a) maintenance of a price differential, (b) increased advertising activity for which the seed dealers were not willing to pay, (c) increased service to the farmer, and (d) attempt to compete with production areas other than California.

4. Other dealers believe that the production of Northern seed should be greatly increased in order to drive the price down so far that California cannot effectively compete with our product. This increase, it was suggested, could come about by increased yields as well as acreage.

5. Another group of dealers believe that the Northern area should engage in certified alfalfa seed production in future years. Such action it was believed would allow us to compete with a similar product and at the same time would have the backing of the experiment stations throughout the United States. Extensive advertising programs and recognition of the benefits from all certified alfalfa seed advertising were recognized and connected to this alternative. There was some disagreement as to whether or not the Northern certified alfalfa seed should be higher or lower in price than the California certified product.

Analysis

1. Seed dealers who stated that no problem exists as category one in the previous section, were referring to their own separate businesses. These businesses performed a primary function of distributorship rather than accumulation. Perhaps more accurately worded, they were saying that the problem did not strike so close to them as it did to others.

Certainly, the totality of this research indicates the existence of a problem for the Northern seedsmen and growers.

2. The belief that no solution to this problem is possible is perhaps somewhat pessimistic. Nothing is unalterable. But whether change brings progress is quite another question.

3. To maintain the status quo and attempt to find solutions within this framework is entirely feasible.

(a) The first action recommended in this framework is the maintenance of a price differential between certified and Northern alfalfa seeds. This belief is substantiated by the seed dealers responding in the survey. They stated that an average price differential of between 4.0 and 4.7 cents would be paid by the farmers in their area for certified over Northern alfalfa seed. Further than this, letters received in addition to the questionnaire from some dealers indicated that a price differential was necessary to sell Northern seed.

(b) Increasing advertising is a method that defies proper analysis. It is worthy to remark, however, that advertising was rated only as a moderate factor in determining demand by the seed dealers surveyed. On the other hand, experiment station recommendations and past experience rated high. It is perhaps just as, if not more, important to sell the product to the experiment stations and the seed dealers before it is sold to the farmer.

(c) The increasing of the services performed by seedsmen for the farmers is in concurrence with seed dealer recommendations in the Cornell Study.

(d) Attempting to compete with other areas is a point of significance only if we are in conflict with those areas. California is not too big for us to compete with, many California seed dealers concurring that the Northern alfalfa seed industry is their biggest competition.

4. To increase Northern production by greater acreage and greater yield would call for a promotion program to the farmer that may not be acceptable to him. It would be necessary for us to say, "Increase your production, use better spraying and cultivation methods, and we will give you less money". Such a solution does not seem practical, because grower interest is not sufficient to allow such action.

5. Production of certified seed in the Northern area would undoubtedly have the unqualified backing of the experiment stations, and would provide a means of competing with California with a like product. To suggest this alternative seems feasible.

Proposed Action

It appears that there will always be a market for Northern alfalfa seed, but only at a price differential between it and certified seed from the West. This market probably will never be as large as it was before. A segment of the market has been taken and will remain lost to Western certified unless a like product can be produced here and marketed in competition with the Western certified seed. The proposed action should contain three elements:

1. Northern uncertified seed should be sold at a price differential (perhaps from 4-5 cents less than the price of certified seed)to retain the market it now has. With such a difference in price, production areas other than California may lose some of their business to the Northern. The supply need not be increased to cause a price difference. Realistic buying practices can achieve the same effect. Also in relation to this element, more markets must be sought out. A seed directory may help this cause.

2. The production and marketing of certified seed from the Northern area appears to be a realistic means for regaining some of the markets that have been lost to the Western producers. Although this Northern certified may command a premium over California produced certified, it would be wise to hold the price below the Western product to regain markets. It is believed that Teton alfalfa (a new variety recently released by the South Dakota Experiment Station) is a means available to attain this end.

3. The Northern product must be identifiable by some merchandising means. Northern seed appears to have its best advertising in stressing "hardy, Northern grown" alfalfa. Many wholesalers are doing this now, but there is no organized effort in this advertising. A single slogan adopted by all Northern seedsmen to include in their individual advertising would probably be most beneficial. Something such as "This seed is approved by the Northern Seedsmen for quality" or "Northern origin", or any of a number of other possible slogans could create the desired effect. The ultimate aim of this slogan would be to make the farmer conscious of seed from this area.

Related, these three actions concurrently pursued would, in the eyes of the author, help most in retaining and regaining markets for Northern alfalfa seed.

The foregoing proposed action program was presented to about 85 attending seedsmen at the Northern Seedsmen's Association annual summer meeting held in Rapid City, South Dakota, August 4-5, 1958. The following recommendations were voted financial and organizational support at that time:

1. A seed directory, exposing new markets for alfalfa and other field seeds, should be compiled and published.[22]
2. Research aimed at determining the feasibility of growing certified alfalfa seed by the Northern farmer-ranchers in economic comparison with present non-certified alfalfa seed and other crop production should be conducted.

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[22]This information was gathered in the seed dealers survey in anticipation of this recommendation.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Objectives

A great deal of this study can be classified as basic descriptive research. This is true because in attempting to solve one problem as an initial endeavor in a specialized field, it is necessary to describe that field to some extent before any one problem can be visualized, singled out, and analyzed.

Because of this, this research involved describing agronomical classifications and advances, legal controls, cultural practices, production trends, the Northern seed industry, and the major alfalfa seed markets.

Further, this research involved the particular problem of market loss. What caused the loss in Northern alfalfa seed markets and how can those markets be regained? This is the problem part of the research as opposed to the descriptive side of this study.

These two research areas have been synthesized into three objectives as follows:

1. Describe the Northern alfalfa seed industry and analyze the factors responsible for the change in its competitive status.

2. Define and investigate the major markets for Northern alfalfa seed.
3. Present some possible solutions for regaining and expanding these markets.

Northern Seed Industry

Objective number one (above) was accomplished by reviewing and summarizing agro-economic relationships, legal controls, cultural practices, and production trends. In addition to this, the industry was viewed functionally by describing the agri-business firms and their functional role in alfalfa seed marketing.

Price, an economic factor, is related to quality, an agronomical factor, in alfalfa seed marketing. The elements that determine quality, in a like but sometimes confused manner also determine price. Because of this relationship various agronomical classifications become particularly important. Common alfalfa seed is a time-tested, naturally-selected type of alfalfa seed. Its predominant characteristics are dependent upon its locale, winter "hardy" common seed being grown and consumed in areas where colder climates persist. Aside from the factor of winter survival, common seed varies in its characteristics by considerable degrees. It is "mixed" seed. Only its origin can be designated. Seeds of particular variety desig-

nations have come about by both discovery and breeding. Early efforts were particularly directed at finding new varieties, but in more recent years new varieties have been developed through breeding techniques. These breeding efforts have been aimed at increased hardiness, greater yields, a fine quality plant, and least susceptibility to plant disease as desirable characteristics in alfalfa. Classification by variety has allowed the seed to be scientifically analyzed and these characteristics measured. But, because all alfalfa seed looks the same, the identification of these varieties has had to be maintained through historical record keeping.

Origin-designation to differentiate between hardy and non-hardy alfalfa seed was the first control measure used in seed identification. This became a legal measure, the enforcement of which was handled for interstate seed shipments by the United States Department of Agriculture. Varieties were identified through record keeping measures legalized by state governments under the label of "certification". In addition to certification, state agencies also set down purity regulations concerned mainly with percentage limits of weed-seed contents in marketed seed. Inter-state purity and handling requirements were set into law with the Federal Seed Act of 1939.

Because hay is a major feed crop for livestock enterprises in South Dakota, alfalfa seed is grown as a secondary crop, depending

on the weather. In moist years seed crops are short and in dry years seed production in South Dakota is high. This fact is evidenced by the fluctuating production of alfalfa seed attributable to South Dakota producers. In recent years California producers have increased their production of alfalfa seed to such an extent that 53.1 percent of the total United States production came from this geographic area in 1957. A large percentage of this seed has been certified and has commanded higher prices than South Dakota common alfalfa seed. More than this, the certified seed from the West has taken markets once held by common seed from the Northern area.

Alfalfa seed wholesaler-processors in this area are numerous and have varied distributorship functions. Twenty-four jobbers, wholesalers, and large retailers were questioned concerning the marketing of alfalfa seed. In procuring alfalfa seed for processing or sale, traveling company buyers, local elevators, direct purchases, contracts with growers, farmer assemblers and other wholesalers were listed as means of obtaining seed. Three buying methods prevail. Experienced buyers "sight" purchase seed without testing it most of the time with dockage tests and full tests also being used. The buying season extends from October to January for most firms, with common and Grimm alfalfa seed being the most purchased alfalfa seed. The tendency for farmers to hold their seed for too

great a time before marketing it and his practice of selling in small amounts were considered purchasing problems by wholesalers. Seed is increasingly being transported by truck, prohibitive railroad rates being the cause for the change from train to truck shipments. Processing performed by the seed companies include cleaning, testing, bagging, mixing, and blending. The blending operation is a relatively new processing practice.

Storage of alfalfa seed does not present a problem, as a great deal of storage space is available or potentially rentable at the present time. Speculation practices have been curtailed by increased production in the Western states, but speculation is still a common practice. Speculation allows an open market for growers of alfalfa seed. Distribution of seed goes through three major links in the marketing chain. It is directed to larger wholesalers, a practice called jobbing; it is sold to retailers, called wholesaling; or it is sold direct to farmers, a practice termed retailing. Seed is transported through these channels mainly by truck, rail shipments mainly used in jobbing operations. Sales methods have changed in recent years, with increased advertising, faster service and use of consignment selling heading the list of changes in merchandising techniques. Pricing of seed depends upon two major factors, the supply of seed and the price of California seed. Profits vary, but 25 percent gross profit is con-

sidered ideal. The greatest hindrances to trade included the uncertainty of production and illegal farmer-neighbor sales. The Federal Soil Bank program provided an impetus to sales this past year. Certified seed sales have increased in this area during the past few years but only by a small amount. Certified seed production by Northern growers was considered feasible, the certification program in this area being little commented on.

The Market

To effect objective number two, the major market was defined and investigated by mail questionnaires sent to county agents and seed dealers.

The primary area of alfalfa seed consumption includes the states of Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York. It was hypothesized that it was in this area that Northern alfalfa seed sales have declined. Accordingly, mail questionnaires were sent to all county agricultural agents in these states plus over 2500 seed dealers in these and surrounding states. The objectives of this survey was to determine (1) the present extent of the Northern alfalfa seed market, (2) what changes have occurred in that market, (3) the general nature of the market in terms of demand, price, and quality, and (4) to investigate the future

of this market for Northern alfalfa seed. Questions pertaining to the first three objectives were asked of both county agents and seed dealers. The fourth objective was realized by answers to questions asked only of the seed dealers.

Responses from both seed dealers and county agents in this primary market area confirmed the belief that quantities of Northern alfalfa seed is consumed there. Further, the hypothesis that Northern alfalfa seed sales have declined in this area was supported by both dealers and agents.

Seed dealers in this area felt that the experiment station recommendation was most influential factor in determining demand for alfalfa seed. The county agent believed that his recommendations influenced farmer demand the most of any factor.

The farmer in this area is basically quality-minded, mainly using the tag analysis to determine the quality of the seed he buys.

The major use of alfalfa seed is for hay and both dealers and county agents feel that seed from this four-state area meets this purpose effectively.

The farmers in this area will pay an average of 4.4 cents per pound more for certified seed than for non-certified seed from this area.

Most of the seed dealers feel there will always be a market for

alfalfa seed from this area mainly because of its insured hardiness.

Conclusions

Possible solutions for regaining and expanding Northern alfalfa seed markets were analyzed as objective number three of this study.

Four alternatives were presented by area seedsmen as possible solutions for regaining and expanding their markets. These alternatives were (1) do nothing, (2) maintain production status quo, but create a price differential between certified and Northern alfalfa seed, increase advertising and service, or attempt to compete with production areas other than California, (3) increase Northern alfalfa seed production, thus driving the price down enough to regain markets and (4) produce certified seed so that a like product can be used in competition with Western producers.

From these alternatives and in view of the results of the market survey, a three-point program is suggested: (1) Maintain a price differential between Northern and certified alfalfa seed to retain those markets remaining and seek new markets by use of a seed directory, (2) produce certified alfalfa seed to regain markets already lost to Western certified producers, and (3) adopt a merchandising slogan usable in individual advertising programs to make consumers conscious

of seed from this area.

The primary recommendation from this study is to continue research especially aimed at determining the economic feasibility of producing certified alfalfa seed in the Northern area.

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APPENDICES

APPENDIX A

NORTHERN SEED INDUSTRY QUESTIONNAIRE

I. PURCHASING

A. Country Buyer or Assembler

1. How many local buying units (elevators, etc.) are completely owned by your company? _____

2. How many local buying units are partially owned by your company? _____

3. How many local buying units, not partially or fully owned by your company, were under contract by you in 1957 as your purchasing agents? _____

4. How many local buying units were dealt with as independent units in 1957? _____

5. Has there been significant changes in the proportion of 1, 2, 3, and 4 in the past ten years? _____

Why or why not? _____

_____

_____

_____

_____

_____

B. Grower

1. Did your company have contracts with growers in 1957?

_____

2. If yes (to question one), how many? _____

3. Do you feel that contract growing will grow in amount in future years?

_____

Why? _____

4. Have you ever attempted contracts with growers? _____

If yes, why was it discontinued or continued? _____

_____

_____

5. What type of contract would you think as being acceptable to both your company and the grower? _____

_____

_____

6. Do any growers from whom you purchase directly engage in alfalfa seed production as its major farm enterprise? _____

7. What percentage of your growers (approximate are consistent producers?)

_____

C. Other Wholesalers

1. Does your company own or partially own any other wholesale units?

_____

How many? _____

2. Is your company owned by (partially or fully) any other wholesaler? _____

3. Do you consider other wholesalers as a constant source of your alfalfa seed supply? _____

4. How many are dealt with on a contract basis? _____

5. What proportion of the seed in your supply area is purchased by out-of-state wholesalers? _____%

---

6. How much seed do you feel was purchased by out-of-state wholesalers in the state of South Dakota? _____%

Do you feel that there has been a significant change in the past 10 years? _____

Why? _____

II. PROCESSING

A. Transportation

1. What transportation units are used by your company in carrying the seed from the grower, local dealer, or wholesaler?

grower _____

local dealer _____

wholesaler _____

Please describe the areas from which you procure the majority of your alfalfa seed.

2. Does your company absorb transportation costs from

grower _____

local dealer _____

wholesaler _____

B. Seed Testing

1. Are all seeds tested for germination and purity before purchase? _____

2. Do you pay different prices for seeds on the basis of these tests? _____

3. What testing agency is used?

State lab _____

Company lab _____

Commercial _____

4. What portion of your seed purchases is based on the judgment of your agent only? _____%

C. Cleaning

1. Does your company clean all the seed it purchases? _____

2. How much seed has already been cleaned by other wholesalers? _____%

Do you reclean previously cleaned seed? _____

D. Bagging

1. What percentage of the bulk seed processed by your company is bagged by your company? _____%

2. How much is already bagged? _____%

3. How many mixtures sold as a single brand are bagged by your company? _____

E. How much per pound is added to the price by the processing performed by your company? _____

F. How much seed can you process yearly (at peak operation)? _____

III. STORAGE

A. Do you keep a continuous supply of seed on hand for purposes of speculation? _____

If so, how much? _____

B. Do you feel that speculation has been curtailed by increased Western production (California)? _____

C. Was speculation a more prevalent practice in your past? _____

D. Do you feel that some speculation is good for the seed industry? _____

E. What are your present storage capacities? _____

IV. SALES

A. Branded and Unbranded Seeds

1. What proportion of branded seed is sold in bag lots _____%

2. What proportion of unbranded seed is sold in bag lots? _____%

B. Transportation

1. By what means of transportation are your seeds transported out of your plants? In what proportion?

Rail _____%

Company truck _____%

Contract or licensed truck _____%

Farmers truck _____%

Other _____%

2. Do you normally bear these transportation costs? _____

3. Under what conditions are the transportation costs not borne by your company? _____

_____

_____

C. Advertising

1. Do you presently advertise by:

Newspaper ads _____

Radio _____

Direct mail _____

Television _____

Trade papers _____

2. What percent of your sales dollar is devoted to advertising? _____%

D. Trade Barriers

1. What do you consider as a major barrier today in selling in South Dakota? _____

_____

_____

Out of South Dakota? _____

_____

_____

2. Do you feel that the below are major trade barriers today?

a. Varying seed laws? _____

b. Lack of coordination in certification programs? _____

c. Prejudices for locally-grown seeds? _____

d. Poor enforcement of seed laws? _____

E. Do you feel that there has been any significant changes in sales methods and practices in the past ten years? _____

_____

F. Profit

1. What is the average profit you make on alfalfa seed? _____%

2. Do you feel this is adequate? _____

   What would be a fair profit? _____%

3. What, besides purchase price and cost of processing, do you base your price upon? _____

_____

_____

G. What percentage of your business is: Retailing _____%
Wholesale _____%
Jobbing _____%

a. Have these proportions changed over the past ten years?

_____

b. If yes, why have they changed? _____

_____

H. What was your total alfalfa seed sales volume in:

Year	Northern*	Certified	Other
1947			
1948			
1949			
1950			
1951			
1952			

1953	_____	_____	_____
1954	_____	_____	_____
1955	_____	_____	_____
1956	_____	_____	_____
1957	_____	_____	_____

(*Northern includes all non-certified varieties grown in the Midwest, Other would include blends.)

I. What percent of your sales are made out of state? _____%

J. What is the proportion of Northern Sales to Certified Sales out of state? Northern _____%

Certified _____%

K. What percent of your certified sales have been out of state?

_____%

L. Has there been an increase in demand for certified seed in this state? _____

M. Has the long-run acreage reserve section of the Soil Bank Program affected your sale of alfalfa seed considerably?

_____

By what percent did your business increase (if any)?

_____%

N. Do you presently sell on consignment or with return privileges? _____

O. Does this method of selling tend to draw more small local businesses into the seed selling business? _____

P. Is this business: a proprietorship (one owner)? _____

a partnership (two or more owners)? _____

a corporation (incorporated)? _____

a subsidiary of another company? _____

V. CERTIFIED SEED

A. Do you feel that the present certification program is in line with other states' programs? _____

B. How do you think it should be operated? _____

_____

_____

C. Do you feel that the South Dakota farmer would profit more today by growing certified seed under present certification regulations?

_____

Why? _____

_____

_____

_____

D. Has the demand for certified seed increased significantly in the past ten years? _____

Please describe the areas in which you sell the majority of your alfalfa seed.

E. What changes and adjustments will be necessary to meet this change (if any) in demand? _____

_____

_____

_____

F. Do branded or unbranded certified seeds sell best? _____

G. Is the cost of handling certified seeds greater or less than that of non-certified? _____

Why? _____

_____

_____

H. If certified seed from the West is a major problem in the Northern Seed Industry, what do you think is the best and most practical solution? _____

_____

_____

VI. COMMENTS

1. What are the major problems in purchasing today? _____

_____

_____

_____

2. What are the major problems in processing? _____

3. What are the major problems in storage? _____

4. What are the major problems in selling? _____

APPENDIX B

MARKET SURVEY QUESTIONNAIRES

Questionnaires Mailed to County Agents

*"Northern" Alfalfa Seed means it is uncertified and comes from either South Dakota, North Dakota, Montana or Wyoming.

SURVEY NO. 2A
ALFALFA SEED MARKETING STUDY

QUESTIONS	ANSWERS
1. Is alfalfa grown in your area?	Yes _____ No _____
2. Have the farmers in your area bought and sown "Northern" Alfalfa seed during the past 5 years?	Yes _____ No _____
3. In your opinion, are the farmers in your area using more "Northern" alfalfa seed this year than five years ago?	Yes _____ No _____
4. If you indicated a change in amount of usage of "Northern" alfalfa seed (in Question 2) what caused this change?	(Write in please) _____

5. What influences the farmer in your area the most in deciding what type of alfalfa seed to purchase?	(Check one) County Agent Recommendations_____ Experiment Sta. Recommendations_____ Advertising_____ Past Experience_____ Price_____ Seed Dealer Salesmanship_____ Other (please specify)_____
6. Do you feel the farmer in your area is mostly	(Check one) Price-minded_____ Quality-minded_____ Indifferent_____
7. What does he use as a basis for seed quality?	(Check one) Brand name_____ Tag_____ Color_____ Price_____ Recommendations_____
8. For what purpose is most of the alfalfa grown in your area?	(Check one) Hay_____ Pasture_____ Seed_____ Other (please specify)_____

9. Does "Northern" alfalfa seed accomplish the purpose checked in Question 7 effectively?	Yes_____ No_____
10. If "No" to question 9, in what way does it fail?	(Write in please)_____
11. Is it a common practice in your area for the farmer to grow other legumes and grasses along with alfalfa?	Yes_____ No_____
12. What variety of alfalfa (not necessarily "Northern") is most heavily planted in your area? Is this variety certified or uncertified?	(Check one) Variety _____ Certified_____ _____ Uncertified_____
13. Why is this variety (checked in question 12) liked best?	(Write in please)_____
14. Please list, in your opinion, the three dealers (companies) that sell the most alfalfa seed in your area.	Name _____ Town _____ Name _____ Town _____ Name _____ Town _____

15. **What variety or varieties are you, as a county agent, recommending to the farmers in your area in buying alfalfa seed? Why?**

Questionnaire Mailed to Seed Dealers

*"Northern" Alfalfa Seed means it is uncertified and comes from either South Dakota, North Dakota, Montana or Wyoming.

SURVEY NO. 2B
ALFALFA SEED MARKETING STUDY

QUESTIONS	ANSWERS
1. Is alfalfa grown in your area?	Yes_____ No_____
2. Have the farmers in your area bought and sown "Northern" alfalfa seed during the past 5 years?	Yes_____ No_____
3. In your opinion, are the farmers in your area using more, less or the same amount of "Northern" alfalfa seed this year than five years ago?	More_____ Less_____ Same_____
4. If you indicated a change in amount of usage of "Northern" alfalfa seed (in Question 2) what caused this change?	(Write in please)_____

5. What influences the farmer in your area the most in deciding what type of alfalfa seed to purchase?	(Check one) County Agent Recommendations_____ Experiment Sta. Recommendations_____ Advertising_____ Past Experience_____ Price_____ Seed Dealer Salesmanship_____ Other (please specify)_____
6. Do you feel the farmer in your area is mostly	(Check one) Price-minded_____ Quality-minded_____ Indifferent_____
7. What does he use as a basis for seed quality?	(Check one) Brand name_____ Tag Analysis_____ Color_____ Price_____ Recommendations_____
8. For what purpose is most of the alfalfa grown in your area?	(Check one) Hay_____ Pasture_____ Seed_____ Other (please specify)_____

9. Does "Northern" alfalfa seed accomplish the purpose checked in Question 7 effectively?	Yes_____ No_____ _____
10. If "No" to question 9, in what way does it fail?	(Write in please)_____ _____ _____
11. Is it a common practice in your area for the farmer to grow other legumes and grasses along with alfalfa?	Yes_____ No_____ _____
12. What variety of alfalfa (not necessarily "Northern") is most heavily planted in your area? Is this variety certified or uncertified?	(Check one) Variety _____ Certified_____ _____ Uncertified_____
13. Why is this variety (checked in question 12) liked best?	(Write in please)_____ _____ _____
14. Approximately what volume (in pounds) of these alfalfas do you handle in a normal year?	"Northern"_____ # Certified_____ # Other_____ #
15. What premium (if any) will the farmer in your area pay for certified alfalfa seed over "Northern"?	(Check one) Nothing_____ 5¢_____ 1¢_____ 6¢_____ 2¢_____ 7¢_____ 3¢_____ 8¢_____ 4¢_____ Will pay more for Northern_____

16. In your opinion do you feel there will be a market in the future for "Northern" seed in your area?

(Check one)
Yes _____
No _____

17. Why (or why not) do you feel that a market for "Northern" will always exist in your area?

(Write in, please) _____

18. What effect do the following factors have on the buying of alfalfa seed by the farmer in your area?

(Check one for each factor)

	None	Little	Moderate	Great	Very Great
Price?					
Quality?					
Advertising?					
County Agents?					
Experiment Station?					
Past Experience?					
Your Salesmanship?					

19. Have the farmers in your area had "bad luck" with "Northern" alfalfa seed?

Yes _____
No _____

20. If "Yes" to question 19, please describe one example.	(Write in please)_____
21. Have the farmers in your area had "bad luck" with certified alfalfa seed from West Coast producing areas?	Yes_____ No_____
22. If "Yes" to question 21, please describe one example.	(Write in please)_____

Please list (other than alfalfa) the field seeds your company buys wholesale and what you sell wholesale.

We Buy:	We Sell: