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SOUTHWEST DISTRICT  
Minnesota, January 1970

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PROJECT III  
AGRICULTURAL PRODUCTION AND TECHNOLOGY

Situation - Priority problems or educational needs and recommendations for program direction.

State specialists and groups of state specialists representing their departments or area of concern developed situation statements and program recommendations in November 1969 for their disciplines by supervisory districts.

County Extension staff members also prepared situation statements and program recommendations in November 1969 for their county. The county summaries were presented to the Project III specialist staff and department heads by the district supervisors at an all day meeting on December 22, 1969.

The situation statements and program recommendations by the county Extension staff will be reflected in the programs of work for 1970-71 being developed by the state specialists staff.

The attached situation statements and program recommendations by the Project III specialist staff should be helpful to county Extension staff members in developing their 1970-71 county plans of work.

AGRICULTURAL EXTENSION SERVICE  
INSTITUTE OF AGRICULTURE  
UNIVERSITY OF MINNESOTA  
ST. PAUL, MINNESOTA 55101

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AGRICULTURAL ECONOMICS - FARM MANAGEMENT  
Southwest District

Situation

This district has a variable resource base in terms of quality of land and amount of rainfall. The area is one of both crop farming and livestock farming at present. Employment opportunities off the farm are more limited here than in the southeast or central districts. Due to the weather variable and location in respect to markets, livestock farming is likely to continue and will include all types of enterprises. Of present livestock operations, beef feeding predominates. In order to be more competitive in this operation, continued expansion in size of such units is likely. In the western edge and southwestern corner of the area resources are also adaptable for beef cow operations and dairy operations. Proximity to feeder cattle supplies, slaughter markets and to South Dakota milk markets indicates potential for these enterprises over time. Hog units will likely continue in the area with greatest concentration in the eastern half and the southern tier of counties where corn grain production predominates.

Crop harvesting systems have been changing at a rapid rate necessitating changes in crop drying, storage and feeding methods. In all, this area has a wide choice of agricultural alternatives. As elsewhere, pressures will be to expand unit size and to specialize in organization.

Priority Problems and Educational Needs

Basic decision making ability is a high priority need in this area as unit expansion and change continues to occur.

Beef feeding operations need to adjust toward controlling non-feed costs to better compete with other regions. With many new technologies for crop production there is need to re-examine crop selection and economics of complete crop systems. Finally, greater emphasis will be needed in the area of financial management as these changes are implemented.

Recommendations for Programs and Methods

<u>For:</u>	<u>Program</u>
Young farmers	Beginning farm management
Top farmers	Advanced Farm Management Business Organization
Specialized Producers	Interdisciplinary Schools
All farmers	Outlook Legal Affairs Corn Drying-Handling Irrigation

Situation - Program Recommendations -- STATE STAFF  
Agricultural Engineering - Buildings and Equipment  
Southwest District

Situation

Concepts of livestock housing are changing rapidly. Older farm buildings in many instances do not meet present needs. Changes in farm building design are evolving from the need for larger operating units, greater labor efficiency and economy in construction. Acceptance of the fact that buildings must be designed to provide suitable environmental conditions for the animals housed is beginning to be recongnized.

In general, farmers are slow in adopting new building ideas. This stems from a natural desire to make use of present buildings and also from lack of working capital to make changes. Many have not gone through the management process that would clearly indicate the direction to move in making changes. This situation is further complicated by the fact that contractors and dealers, who have the most direct contact with the farmers, have not always kept up with modern developments.

The Extension Engineers will need to become increasingly concerned with wholesaling information and knowledge through commercial concerns and professional people who work with producers. Particular efforts should be expended with dealers and manufacturers of farm buildings and equipment, farm managers, technical school personnel and agricultural instructors.

Southwest District

The Southwest District has two major livestock enterprises which require new or remodeled buildings. Dairy is a minor enterprise. Beef is the major enterprise with swine as the minor enterprise.

Southwest District

Beef Enterprises

Beef producers are looking down the road to the time they might be handling 500 to 1,500 head or more.

Our main concern now is that any present building construction will fit into the overall plan for the future. At least what the producer now does won't be in the way for future expansion. To encourage this, we suggest new sites instead of old confined yards.

The present trends of types of construction are in a state of flux. The old free choice housing with outside feeding is still very popular. Cold, open, slatted floor housing with liquid manure handling or good size mounds with no housing are starting to be discussed by many producers.

Swine Enterprises

Many hog producers are increasing the number of hogs farrowed and finished. The type of building that is creating the most interest is the cold open partially slatted finishing house. The free-stall farrowing layout is a close second as far as requests for information are concerned.

Most new swine buildings include a liquid manure handling system. The old perennial problem of how to handle ventilation is still with us.

Dairy Enterprises

Some dairymen with small herds and little or no potential for expansion because of limited capital are producing milk in cans and are "holding on" until retirement. Educational programs are likely to have little impact on this group.

The general trend is to increase the size of the dairy unit. Operators severely limited by lack of capital are expanding using minimum housing

## Southwest District

and milking facilities, often with the old barn as a basic unit for milking in combination with cold outside housing. Operators who are somewhat more favorably situated economically may build a modern milking parlor in combination with cold housing for the animals.

Dairymen who have sizeable herds of good to excellent production may build completely new facilities. Of current interest is slat floor free stall housing because of reduced labor requirements in manure handling and the provision for several months manure storage. The cost of these units is high.

Stall barns represent a high percentage of new construction for small to moderate size dairy operations. This will continue.

The control of pollution from livestock wastes must be considered in all expansion programs. At present guidelines in this area are minimal but implementation of stricter regulations seems imminent.

### Program Direction or Methods

Demonstration Layouts. When dealing with various building enterprises that may cost up to \$75,000 we would like to discuss the layout at the construction site with the producer, county agent and any contractor or dealer who may participate at a later date in the actual construction.

We feel that this type of activity will spread more good building practices than any other method we may employ.

### Professional Improvement Schools

Since we are concerned with wholesaling information and knowledge through commercial concerns and professional people who work with producers, we would like to encourage supervisors to push this type of educational activity.

Southwest District

Intensified Schools, County Meetings or Tours

Each one of these activities has its place in the educational scheme. The method selected will depend on type of livestock enterprise, the clientele we hope to reach and the objectives we wish to accomplish.

Submitted by

D. W. Bates

D. M. Ryan

Situation - Program Recommendations -- STATE STAFF

Agricultural Engineering (Materials Handling)

Southeast, Southwest and Central

Situation

The percentage of corn that is field shelled is rising steadily. This is partly caused by an increasing volume of corn per farmer and the inability of the farmer to obtain adequate labor. The movement to field shelling of corn has created a totally different concept in the handling of this crop. Some of this field shelled corn is going into silo-type structures to be stored as high moisture corn until it is fed. The remainder of the corn crop that is field shelled must be dried to proper storage conditions. The farmer is now faced with several decisions: 1) Should he sell the high moisture corn direct to the elevator and take the moisture discount. 2) Should he have the corn custom dried and store commercially or store on the farm. 3) Invest in a drying system so he can handle his own crop. The pressures created by lack of commercial facilities and custom drying operations has forced the farmer, to a large degree, into investing in his own drying and storage system.

Once the farmer has decided to invest in his own drying and storage system he is faced with several other decisions. These will include selection of a drying method, selection of handling equipment, and the planning and layout of the total system so that it can provide the proper function. Once the system is installed and operating, the farmer must be skilled in the operation of the equipment and the basic requirements for maintaining good quality corn once it is placed in storage.

The farmers that are investing in drying systems for corn are also growing soybeans. There will be a greater movement to the harvesting of soybeans at moisture contents above which they can be stored safely. The same drying systems that are used for corn can be used satisfactorily for drying soybeans.

SE, SW, and Central

However, the operating conditions and management must be varied when soybeans are to be dried.

The size of feeding operations are increasing. The increase in size of feeding operations together with an inadequate labor supply requires an increasing dependence on mechanical handling and processing of feeds. There is a great deal of new equipment on the market for mechanizing and automating these feed handling systems.

Priority Problems or Educational Needs

In the grain and feed processing, handling and storage area the following needs arise: 1) An educational program for the owners and operators of commercial facilities to help them expand their operation whereby they can accept a greater load created by the change to field shelling. 2) An educational program for the farmers to help them in their decisions on selection of drying, handling and storage equipment, in the planning and layout of the total system and in the operation of the facility. 3) An educational program for the dealers and distributors of grain drying, grain and feed handling and storage equipment so they are better equipped to help the farmer in planning and constructing their systems. 4) An educational program on basic electrical equipment, controls, and wiring. With the increased mechanization in grain and feed handling operations there is dependence on electrical equipment and its automatic operation.

Recommendations for Program Direction or Methods

The following methods would be used in providing these educational needs: 1) The preparation of bulletins, fact sheets and M-sheets. 2) County and area meetings. 3) Slide series and tapes. 4) Tours, to provide on-site learning for system design, layout, and operation. 5) Demonstration layouts relatively detailed work with an individual operator in a particular

SE, SW, and Central

geographical area to develop a model system for his use and which would serve as demonstration for other operators in his area. 6) Professional improvement workshops for commercial elevator operators, dealers and distributors of grain and feed handling, drying and storage equipment, county extension staff, vocational agricultural instructors and other professional workers in the agricultural field.

Submitted by

Harold A. Cloud

Situation - Program Recommendations -- STATE STAFF

Agricultural Engineering: Irrigation, Water and Sewage Systems

Southwest District

Situation

In the northern half of this district there is considerable interest in sprinkler irrigation which has been increasing quite rapidly in recent years. On the light droughty soils and where adequate groundwater is available, a considerable number of sprinkler irrigation systems are being installed.

Groundwater surveys by the U. S. Geological Survey have been made in portions of this area to determine the extent and amount of groundwater resources. While these surveys present a picture of the overall groundwater resource of the area, it is still necessary for farmers to have test wells installed on their individual farms to determine the capacity that they might expect from an irrigation well.

Much of the interest and activity in irrigation has taken place in recent years, however, there are farmers who have been irrigating crops in this area for longer periods of time. It seems apparent that the interest and activity in sprinkler irrigation has already contributed to a more favorable economic outlook for this portion of the district.

In the southern part of the Southwest District there is irrigation interest in local areas. However, the interest and the water availability are relatively minor.

Throughout the Southwest District there is considerable interest in water supply and water conditioning. Farm homes have been modernized, livestock production facilities expanded, and usually the water well has not been increased in size or depth. Also the concentrated livestock

Southwest District

facilities and the increased fertility practices have increased the pollution potential of the water supplies.

Individual sewage disposal systems are also of interest to the homeowners in this area. In the case of heavy, tight soils a properly designed and installed soil absorption system is necessary for the successful operation of a domestic sewage system.

Priority Problems or Educational Needs

The top priority item in the north half of the Southwest District is information on irrigation equipment and practices. The proper use of an irrigation system as a production factor must be emphasized and re-emphasized. In the south half of this district, it appears that the top priority is water supply. This may be the construction of new and deeper wells, it may be the development of rural water districts to supply water where individual wells are not feasible or are not possible to obtain. Water quality and conditioning should also be an essential part of an educational program. Much of the water is high in hardness, sulfates, iron and other objectionable minerals.

Recommendations for Program Direction or Methods

Irrigation information should be presented to local groups on a county or multi-county meeting basis. Subject matter should be selected for the clientele at the proper experience level. Farm consultations should be used to work with the leading farmers so that latest equipment and irrigation practices are used and demonstrated. Considerable literature at the state level is needed, some of which is in process and some of which is proposed for publication.

The water quality testing program of the Minnesota Department of Health should be explained in detail both to local meetings and through local news media. Water conditioning should be explained through local meetings to individual homeowners and in many cases it appears that it would be advisable

Southwest District

to have meetings for dealers and their personnel. Dealer meetings should be carried on in cooperation with manufacturer and industry representatives.

Many questions on sewage disposal systems can be answered by Bulletin No. 304 "Town and Country Sewage Systems", which will be reprinted. Individual meetings on this subject can be held as local interest warrants.

The proper construction of wells to insure a safe water supply should be explained at local meetings both to property owners and to local government officials. In those areas where it is extremely difficult or impossible to obtain individual water supplies, rural water districts, their advantages and disadvantages, should be explained both to individual property owners and to government officials. Again, it may be advisable to have separate meetings for the home owner and for the government official.

Submitted by *Roger E. Machmeier*

Roger E. Machmeier  
Extension Agricultural Engineer

Situation - Program Recommendations -- STATE STAFF

Agricultural Engineering - Machinery

Central, S.E., and S.W. Districts

Situation

(1) With corn and soybeans being of major importance, field losses when harvesting these crops can be of economic importance. Surveys in other states indicate a pattern where operators are unaware of, or indifferent to, the magnitude of field harvest losses, and county agents in Minnesota have concurred with this pattern. Machine operators need to know how to determine losses and then what adjustments to make to reduce the losses.

(2) Tillage methods are in a state of flux. Some farmers are using minimum tillage; some are staying with conventional methods; and others are wondering which way to move. The chisel plow is being tried by some and watched by a great many others. Many of the "new" tillage systems get the crop in with fewer machine hours, but generate questions as to weed control, fertilizer placement, disease and insect build-up, and varying soil temperatures. As we find answers to these questions, tillage will continue to change to a reduced number of operations. In addition to the above, problems of soil erosion and water control need to be considered in the selection of a tillage system.

(3) Farmers continue to select machinery using various degrees of planning and reasons known only to themselves. Machinery costs constitute about 30% of total crop production costs, and with larger equipment and more kinds of machines available, this figure will surely rise. The small farmer and the livestock farmer will find it increasingly difficult to mechanize their field operations at a reasonable cost. The large farm operator can find many places for his machinery dollar, and must plan wisely to use it efficiently.

Central, S.E., and S.W. Districts

Educational Needs

(1) Machine operators need to know the method for determining the extent of harvest losses and then the adjustments necessary to reduce losses.

(2) Farmers need to know the capabilities and problems involved with minimum tillage, and the proper operation techniques for the various tillage systems. They need to know how the tillage practices apply to soil types and cropping programs, and alternate procedures for unusual weather conditions.

(3) The increasing numbers of sizes and kinds of machinery allow more freedom to match the machinery system to the individual farm needs. Farmers need to know the factors affecting machine costs and methods of anticipating these costs when selecting equipment. Also the equipment investment must be viewed in relation to other inputs to the farming enterprise.

Program Direction or Method

(1) Corn and soybean harvest losses have been covered for three years in the corn and soybean production schools. Additional meetings in some areas may be helpful, but we're reaching a point of repetition in several counties. Demonstrations of the loss determination method with visual examples of losses on the ground seem to be the next logical step. They could be set up at Experiment Station field days, county corn and soybean days, etc. Such a demonstration was well received at Waseca at their fall field day in September.

(2) The program on tillage practices should be carried in cooperation with the soils department and be covered both with winter meetings and spring or fall field demonstrations. The winter meeting would cover machine selection, application to soil conditions, fertilizer placement, and the benefits and problems of the systems. The field demonstrations

Central, S.E., and S.W. Districts

would point out the equipment available and the operation and adjustment of that equipment. A supportive program of research is also needed to evaluate these tillage methods in Minnesota. (One is planned in Waseca starting with tillage this fall.)

(3) A Machinery Selection Program was initiated this year by specialists in Agricultural Engineering and Farm Management. It has been presented as a professional improvement program for county agents, other agency people, dealers, bankers, and others consulting with farmers on machinery problems.

I believe this avenue can be used another year with a continuation to special interest farmer groups in the future.

Part of this program is intended to encourage the use of computer facilities for making comparative calculations for different machinery systems. We will need additional help from agents and others in the counties to establish appropriate input constants to the machinery calculations. This is a brand new baby and it could go far, but we need feed back to keep it fed and headed in the right direction.

Submitted by

John A. True

Situation - Program Recommendations

Agronomy Department

Southwest District

Situation

In the northern half of the district (west central crop reporting district), about 3,503,100 acres were devoted to corn, soybeans, oats, wheat, flax, barley, rye and hay (average 1967 and 1968). This was about 70% of the total land in farms. Corn acreage accounted for about 28% of the total for these crops, followed by soybeans (20%), oats (20%), hay (13%), barley (8%), wheat (7%), flax (4%) and rye (less than 1%).

In the southern half of the district (southwest crop reporting district) there were about 2,633,800 acres devoted to these field crops in 1967 and 1968. This was over 75% of the land in farms. Corn accounted for nearly half of the acreage of these crops, followed by soybeans (27%), oats (11%), and hay (10%). Acreages of the other crops were minor.

Corn yields have continued to increase (when weather is favorable) because of farmers increased awareness and adoption of various production practices. However, production costs continue to move in the same direction, and for some farmers at a faster rate than yields increase. Therefore, the need for information relative to a combination of production inputs that will maximize the return per acre remains extremely important to the farmer of both large and small operational units.

Soybean yields continue to remain at about the same level, with yearly fluctuations occurring as a result of weather differences.

The gain to be expected from the adoption of certain production practices such as row spacing, certified seed, etc. continually needs stressing. Lower market prices and competition from other oil sources continually puts pressure on producers to be aware of the profitability of the enterprise as compared to alternatives.

The small grains in the southwest district (oats, wheat, barley, rye and flax) have increased in yield about 35% over the last 10 years which compares to 24% for the whole state. Acreage has increased 25, 40 and 50% for wheat, barley and rye respectively for the district during the past 10 years while oat acreage decreased 25% and flax acreage 35%. Small grains are an important cash crop in the district and educational programs on improved production practices need to be conducted.

Approximately 3.3 million acres were used for production of hay crops in Minnesota in 1968. This is second to corn in importance in Minnesota on an acreage basis. When an additional 0.7 million acres of corn used for silage is included with the hay acreage, forage crop production in Minnesota outranks corn in dollar value of crop produced.

Yields of corn for grain and for silage have increased markedly in Minnesota in the past several years. Hay yields, however, have virtually remained the same. An "all hay" average yield of 2.3 tons per acre and an average alfalfa yield of 2.75 tons per acre (with alfalfa representing about two-thirds of the hay acreage) attests to the fact that extension work in the area of forage production and

management is needed.

Alfalfa fits well on modern dairy farms as a partner with corn silage. However, alfalfa yield goals must be increased if the crop is to be competitive on many southern Minnesota farms.

Interest in other crops such as sunflowers, dry beans and mustard has increased during the last few years in this district. Sunflowers were grown by 93 farmers in the northern part of the district in 1968. Increased interest is expected to continue in these crops requiring educational programs on the production requirements of these new crops in this district.

#### Educational Needs and Suggested Program Directions

Crop producers need better understanding of:

- (1) the potential for improving crop production efficiency through use of improved practices,
  - (2) improved skills in using the practices,
- and
- (3) better understanding of the principles of plant growth and development; variety development and selection and crop production techniques.

Businesses serving crop producers need improved skills and abilities in recognizing the needs of producers and ability to help producers make sound decisions on purchased input items.

The methods employed to fulfill the educational needs should continue to include mass media, news releases, demonstrations, farmer-dealer meetings, county agent training, bulletins, fact sheets, correspondence, etc. To further enhance the effectiveness of our efforts, more state specialist time should be spent training the

county agents and area crops and soils agents (discussion of research, preparation of visuals, etc.) who in turn could conduct a larger porportion of the farmer meetings.

Weed control educational programs should continue to provide information on proper and safe use of herbicides. There is a need to reach the general public with objective informational programs on the role of chemicals in food production and the precautions taken to assure safe use.

Extension programs should continue to provide information on new herbicides for corn and soybeans through demonstrations and meetings. Special emphasis should be given through information and demonstration programs to wild sunflower and Canada thistle control and musk thistle eradication. High priority should be given to conducting "Agricultural Pesticides Workshops" for dealers, custom operators, vocational agricultural inspectors, county agents, farm managers, industry representatives, and "top" farmers.

We need to utilize more fully the small grain schools offered in "Open Doors to Learning."

Dairy cattle numbers continue to decline in this area and forage crop production is not nearly as important as in other areas of the state. However, the educational needs of farmers still in the dairy enterprise must still be served. Periodic winter meetings in this area, dairy cattle forums including forage production, and some individual contact through county agents should fill the need.

Beef cow numbers have increased gradually and some attention should be given to the forage situation for these animals. Forage production sessions have been available as part of the beef cow herd

management schools, but have not been used to any extent. We recommend that forage production be included in these types of educational programs.

## SOIL FERTILITY SITUATION STATEMENT

Southeast, Southwest, Central Supervisory Districts

Most progressive farmers who seek advice from the Extension Service are using commercial fertilizer at rather liberal rates. Questions for soil specialists are no longer whether fertilizer should be used or how much should be used on low yielding fields. The situation today in most instances is that soils test high in phosphorus and potassium and crop yields are very high. The question is, are very high rates of P and K needed on these soils to maintain or produce even higher yields.

In general, the technique of computerized recommendations has been very successful. Further refinements, however, are necessary to handle unique problems. Part of the dynamics of computer programming is the opportunity to update and improve the computerized recommendations in solving these problems. This also necessitates the continuous educational activities in updating people. Included are farmers, dealers, as well as county Extension personnel. It is important that county Extension people maintain a close relationship in this updating, since the computer cannot handle all refinements in local situations. The agent plays an important role here.

SOIL FERTILITY SITUATION STATEMENT

Southeast, Southwest, Central, Northwest and Northeast Supervisory Districts

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## SOUTHEAST, SOUTHWEST, CENTRAL DISTRICTS

Frequently the effect of climatic factors and soil physical factors (including soil water, soil temperature, soil aeration, and soil strength) on crop yield is of predominate importance. This is especially true when the nutrient and genetic limitations on yield have been raised to higher yield levels. The most feasible ways of modifying the soil physical environment include tillage, drainage, irrigation and residue management.

Educational programs are needed to assist the farmer in matching the soil environment required by the crop with that created by tillage or other means. Differences in soils, climatic conditions and crops present a diversity of conditions which need to be created by tillage. Tillage and residue management appear to be the most readily acceptable wind and water erosion control practices on the bulk of Minnesota corn and soybean land and can supplement other practices on more serious areas of erosion. Methods of using tillage must be adjusted to differences in soils and climate to create conditions of surface roughness and residue cover which will provide protection from erosion, but not decrease crop yield.

Irrigation in sandy areas of Minnesota, predominantly in the central district, but also in the southwest district, require additional soils information, including the available water holding capacity and amounts and timing of irrigation and methods of applying N to minimize danger of pollution of subsurface water resources.

Situational Trends in Forestry  
and Their Implication for Areas of Concern

1. SCOPE OF INDUSTRY

Minnesota's forest resources provide full or part-time employment to about 50,000 people in the harvesting and processing of timber products. Another 58,000 are employed full or part-time in the timber-based activities of transportation, construction, marketing, and primary and secondary manufacturing, etc. The resource is especially important in the 16 northeastern counties which contain about 80 percent of the total forest areas and contribute 90 percent of the value of its forest products.

In 1968 the estimated value of forest products harvested in the state was \$342 million. Lumber's importance as the primary product of our forests has given way to pulpwood and an array of other products. Presently lumber accounts for only \$18 million and pulpwood for \$300 million out of the total value of products harvested.

According to the Forest Industries Information Committee, timber-based activities in Minnesota added over a half billion dollars to the GNP in 1968.

In 1968, 1287 plants located throughout the state were processing logs and bolts. Below is a breakdown of these:

Sawmills			
Large	(5MM)	1	
Medium	(1MM to 5MM)	25	
Small	(less than 1MM)	1200	/ 1226
Pulp and Paper Manufacturing		11	
Veneer plants		4	
Charcoal plants		3	
Cooperage mills		3	
Miscellaneous plants		<u>40</u>	
		1287	

LUMBER

One problem for the future is a rather unpromising outlook for lumber. In 1899, U.S. lumber production was 35 billion board feet; in 1968, the nation produced 37.1 billion board feet. This, in spite of the fact that population more than doubled in this 64 year period. Of the 1968 production of 37.1 billion board feet, less than one percent was from Minnesota. Lumber production in Minnesota and the Lake States generally hit its peak in the 1890-1910 period. It has since declined fairly steadily; in Minnesota stabilizing over the past decade at approximately 160 million board feet. Minnesota's lumber cut in 1968 was 166 million board feet.

One reason for the declining production of lumber is stiffer competition from the West and South. A second is increased use of substitutes in building, such as plywood, pressed wood, and metals. Another reason is a shortage of growing stock large enough to yield sawlogs, and a fourth reason is increased technology that gets the job done with fewer workers. A fifth and more recent reason is the reduction of housing starts with a decline in lumber production.

#### PULP & PAPER

The pulp and paper industry, on the other hand, is growing in Minnesota and is maintaining a rate of growth about equal to the national average of 3 percent annually.

In terms of trends in pulpwood harvest in the Lake States, it is noted that Minnesota's pulpwood output in recent years has not followed the strong upward trend so evident in Michigan and Wisconsin. In Minnesota the 1968 harvest was 1,086,500 cords, about the same as in 1965. However, the industry in Minnesota has expanded plant facilities, and as a result more of the pulpwood cut in the state has been delivered to Minnesota mills.

Paper and board products consumption nationally has jumped from 403 pounds per person in 1958 to 530 pounds in 1968. An important question is whether industry growth in Minnesota will match the demand increase. The most rapid growth, completely out-distancing that of Minnesota and neighboring states, has been in the South and West.

#### OTHER FOREST PRODUCTS

The combined estimated value of Minnesota's minor forest products was 24 million dollars in 1968. Minnesota's Christmas tree industry, our maple syrup industry, the use of poles, posts, and piling, our matchwood and veneer wood markets will remain stable or may experience growth. There are opportunities for development and expansion in one or more of these commodities which would contribute to the economic welfare of the people and the local communities. But markets for fuelwood, cooperage, railroad ties, and mining timbers are steadily declining.

## 2. KEY TRENDS AND DEVELOPMENTS OVER A PERIOD OF TIME

- a. Undoubtedly the most significant trend in the forest industry within the past few years has been the merger of several large local companies with nationally oriented industrial complexes (ex. M and O Paper Company with Boise-Cascade; Northwest Paper Company with Potlatch). This alliance to integrated organizations with national and international markets, diversified forest product lines, corporate financing and interlocking administration has many implications for the future of the forest industry in Minnesota.
- b. Minnesota's primary forest industries will continue to be located in northern Minnesota. This is where the bulk of the resource is found. As future demands for wood and fiber increase there likely will be demands for that forest resource now in young coniferous

plantations in east central Minnesota and the natural hardwood stands of southeastern Minnesota. There are presently few large production units in operation in central or southern Minnesota.

- c. At the present time, Minnesota is growing more wood on commercial forest land than is being harvested. However, there are questions as to the amount of excess wood which is economically available to the industry. Statements that we are growing 2-1/2 times as much wood as we are cutting do not consider this economic availability. Studies are underway to determine where economically available wood may sustain plant expansions and/or the establishment of new processing facilities.
- d. Forest land ownership patterns are generally static at the present time. Farm woodland ownership in acres is declining but this appears to drop into the category of "other small private ownership" and the wood is as available as in farmer ownership. In 1960 forest land ownership and total wood harvested from each ownership category were as follows:

<u>Ownership</u>	<u>Acres (million)</u>	<u>Wood Harvested</u>
Farm & Misc. Private	6.8 (40%)	44%
National Forest	2.1 (12%)	16%
Other Public	7.4 (44%)	31%
Forest Industry	0.7 ( 4%)	9%
	17.0	100%

This would indicate a fair balance in cut from ownership categories. In previous years the trend has been for the farm and small private ownership to be larger proportionately than all other categories. This has allowed for greater growth over drain in these segments. We apparently are reaching somewhat of a balance, which is to be desired.

Considerable concern has been expressed nationally and in Minnesota as to the restrictions placed on forest land use. These range from the withdrawal of forest land for other incompatible uses, such as highways, transmission lines, urban development, etc., to the single use, without withdrawal, of forest land for recreation, wilderness areas, etc. If restrictions or withdrawals continue, Minnesota may no longer have to concern itself with excess wood growth.

Of significance to this is the long-standing philosophy of foresters that maximum wood production per acre of high site forest soil should be encouraged of all woodland owners. This is proper forest management. This trend is in evidence in the management of our industrial, national, and forest lands. The trend is not evident on our farm and small woodland ownerships except where individuals have shown initiative, and the trend is quite the reverse on our county tax-forfeiture lands.

- e. The forest industries are experiencing some aggravating problems in labor supply. There are a number of factors:
  1. Less inclination on the part of young men to tolerate adverse working conditions without commensurate wage increases.
  2. More competition from industries with higher wage scales (ex. construction, taconite).

3. With increased education and skills, an ability to operate more sophisticated machinery, thus to have more versatility in employment.

The forest industries are moving to correct this situation, primarily through labor-saving equipment and systems. How effective these will be remains to be seen. Technology in logging operations has not progressed at a pace with that in other industrial operations due to a complexity of reasons.

- f. The number of sawmills in Minnesota has not declined significantly but there has been a considerable change in sawmill ownership. This is reflected only in the small sawmills. With the potential of chip production for sale to pulp mills, we may expect some increased growth in sawmill production. Larger sawmills are now realizing sales of chips thus increased utilization of the sawlog and higher revenue per purchased unit. Increased technology will be the trend in our larger mills. Diversification of milled products may also be expected.
- g. Minor forest products have growth potentials, but expertise in marketing and management are restricting factors. Minnesota is the nation's largest Christmas tree producer. We harvest about one-eighth of the nation's Christmas trees. Yet only a few producers have implemented this seasonal activity to make it a year-round operation. Minnesota has a tremendous potential in maple syrup production. In spite of a year-round demand and market, not one of our state producers has expanded to capitalize on this situation. Obviously there are complexities and unknowns in the two examples cited here which have not been examined. Entrepreneurship is the main element lacking, however, and the continuing absence of this is part of this trend.
- h. Minnesota's predominately small diameter forest resource requires efficient processing equipment and adequate chip markets for best results. New machines and processes are continually being developed to process small diameter logs. Minnesota mills will be installing more of this type of equipment in future years, but chip markets must be developed simultaneously in order to make these operations successful.
- i. Minnesota's under-utilized forest resources are attracting increasing attention on the part of development groups and the forest industry. As forest resources in other parts of the nation become increasingly scarce, Minnesota's tallest crop will play a significant role in meeting future wood requirements in the upper Midwest. There is a need for putting together information packages on specific regional areas within Minnesota, to inform our county agents and area staffs how to go about conducting feasibility studies in forest products, and in general, provide more information on forest products manufacturing and marketing opportunities in Minnesota.

### 3. IMPLICATIONS FOR EXTENSION

The point should be made that within the framework of forestry and forest products extension we have the complexity of situations and problems which in the total of Agricultural Extension are divided into the following categories:

- \* Production, Management, and Technology
- \* Utilization and Marketing
- \* Resource Development

The implications cited below are in the context of production, management, and technology:

- a. There is a continuing need for program development in proper forest management in all categories of woodland ownership, especially with the small woodland owner and county government.
- b. Quality of wood continues to be almost as significant a criteria as quantity in most of our forest industries. Increased emphasis on planting programs of high quality growing stock is needed; the proper selection of planting stock to planting site must be insisted upon; grading and harvesting techniques to derive quality production are essential in our education programs.
- c. Increased liaison with forestry research personnel at the University and other research centers is of utmost importance in the rapid extension of this research to the citizen-user and the needs for research from the woods to the laboratory.
- d. Close cooperation is essential between Extension, industry and other public agencies in identifying major problems and needs of the timber industry. Increased efficiency and safety in wood production is a need already recognized and further programming among timber producers would be a logical step.
- e. Continued responsibilities to specific programs for the small woodland owner must be recognized and planned for in our extension programs. Windbreak plantings, reforestation for aesthetics, the everyday problems of forest maintenance and protection must all be Extension's concern in the future as they have been in the past.
- f. Expanded assistance in educational efforts to the producers of minor forest products is essential. Quite frequently these people have no one else to turn to but the Extension Service for assistance. In the aggregate this segment of our forest industries is the second largest income producer in Minnesota, ranking only behind pulp and paper.
- g. It is imperative that we develop far-sighted programs to assist in the transfer of technology to the tasks of forest management and timber production. Labor saving machinery and systems is a prerequisite for our industries, large and small. Extension has the framework to assist industry and the forestry agencies in establishing these programs.
- h. Closer orientation and communication with state, area, and county extension personnel is mandatory if we are to effectively discharge our responsibilities. This same coordination should be further extended with resource personnel in utilization, marketing, and resource development.

The following are implications for Extension which relate to programs in utilization and marketing of forest products.

- a. Extension must continue to develop programs of educational assistance to the forest products industry. In the past two years, courses in hardwood lumber grading and kiln drying have been added to the extension program, but courses in softwood grading and saw filing should be considered.

- b. Minnesota's producers of forest products need additional assistance in marketing. They urgently need a revised directory of Minnesota wood processors and users. An improved price reporting system should also be considered, and an extension specialist position in forest products marketing should be funded.
- c. Additional programs in forest products marketing and utilization need to be created for the small processor, not only in terms of improving production efficiency but also in terms of business practices and management techniques.
- d. Extension should more thoroughly support the "team" approach to solving problems in the forest products industry. We need a coordinated effort on the part of all agencies involved when new plant facilities are being investigated and information is being sought by an interested firm or development group.

## EXTENSION FORESTRY

Districts\*SoutheastSouthwestCentralNorthwestNortheast

Wood use on the farm				
Dutch elm disease				
Conservation education				
Maple syrup production	- - - - -	Maple syrup production	Maple syrup production	Maple syrup production
- - - - -	Shelterbelts	Shelterbelts	Shelterbelts	- - - - -
Public affairs--forestry				
- - - - -	- - - - -	- - - - -	Loggers' Workshop	Loggers' Workshop
Sawmill operators				
Christmas trees	- - - - -	Christmas trees	Christmas trees	Christmas trees
Tree planting				
For. landowner conf.	- - - - -	For. landowner conf.	- - - - -	For. landowner conf.
Forestry field days	- - - - -	Forestry field days	Forestry field days	Forestry field days
Lumbermen's S.C.**				
Ind. plant location				
Dry kiln opr. S.C.**				
Lumber grading	- - - - -	Lumber grading	- - - - -	Lumber grading

\* These are suggested by districts as a generalization only

\*\* Offered on the St. Paul Campus only.

Situational Statement - Horticultural Science

Southwest District

Fruit --- Opportunities for home fruit production are good. One of the limitations is the problem of chlorosis. Work with the commercial orchardists should include cultural practices and marketing. Small fruit production could expand with special emphasis on weed control.

Vegetable and Potatoes --- The Cannery Short Course will continue to offer information to processors and fieldmen in the district. Assistance will be offered to the vegetable growers on weed control and irrigation. There appears to be a potential for vegetable production in the northern part of the district under irrigation.

Nursery production --- The Dutch Elm disease is a realistic threat to the area and information on replacement trees is imperative. Planting methods in the area are especially important because of the difficulty in establishing newly planted trees.

Floriculture --- In order to meet the consumer demands expansion in the bedding plant industry in the area should be emphasized.

Turf --- Commercial sod production can be expanded particularly as it relates to the larger urban areas. Residential home landscape problems need attention because of the chlorosis, fertility, and variety adaptation problems.

Landscape design and maintenance --- Emphasis should be placed on residential design as well as commercial and institutional landscaping. Planning within the context of parks and park systems should also be fostered.

PLANT PATHOLOGY  
Southwest District

Program emphasis is determined by several factors: The importance of the crop, the need for improvement in a situation, the characteristics of a crop, the availability of known but non-applied information, availability of qualified personnel to do the work, and local desire and cooperation on a project.

Sugar Beet Leaf Disease Control

Districts--Northwest, Southwest, Central, and Southeast.

Cercospora leaf spot severity varies from season to season. When it is severe, there is a real need to apply fungicides for control. The problem here is for enough people to be able to survey the crop to determine the need for control and then convince the growers of the beneficial effects of the control program.

Cereal Leaf Disease Control

Districts--Northwest, Southwest.

Leaf diseases are a major cause of reductions in yield and quality of cereal grains. Some diseases have been controlled adequately for many years through resistant varieties. Other leaf diseases cause leaf loss and significant damage every year and for a long time the damage they cause was underestimated and accepted as a normal crop hazard. The development of aerial application of fungicides at a total cost of five to six dollars per acre for successful treatment has given some very good and economical yield increases. This procedure has been accepted by a large number of growers in the Red River Valley and across North Dakota. Many more could benefit from the treatment in those areas, and successful field demonstrations were carried out in the Southwest District in 1969. Both the aerial operators and the growers need instruction on the use of this treatment. Survey of disease development and crop condition are both necessary in intelligent judgment of the need for economical fungicide application. The development and use of infrared photography may be the key needed to predict the need and timing of control measures.

Corn Disease Control

Districts--Central, Southwest, Southeast.

Seedling blight with its accompanying stand loss, stalk rot and lodging, and some new leaf diseases are the major disease problems in Minnesota's most important field crop. The known controls for seedling blight and stalk rot and lodging are being recommended and the information is distributed in various ways. The controls involve the use of disease resistant hybrids and cultural practices that are generally in line with recommendations of Agronomists, Entomologists, and Soils

Specialists. There is little that is new in this problem. The Extension effort is directed mainly at reaching corn growers who are not yet fully utilizing the available information.

#### Soybean Diseases

Districts--Central, Southeast, Southwest, Northwest.

Several diseases of soybeans are present every year, but seldom do any of them become seriously limiting. The total loss from disease in this crop in Minnesota is estimated at about 8-10%. Seed treatment, the use of recommended varieties, land selection, and good cultural practices are recommended. This information is distributed through various media.

#### Alfalfa Diseases

Districts--Central, Southeast, Southwest, Northeast, Northwest.

Leaf diseases and stand loss are the most serious diseases of this crop. Little can be recommended for control of leaf diseases. Early harvest in line with recommendations by the Agronomists will reduce losses. There are no highly resistant varieties and cultural practices have little effect. Fungicide application has not been developed for this crop. Stand loss can be reduced by the use of disease resistant varieties and land selection to avoid low ground. Many of the new commercial varieties have no resistance to bacterial wilt, and all varieties are susceptible to Phytophthora root rot. These diseases together with crown rots cause stand reductions.

#### Intensive Small Fruit and Vegetable Crops

Districts--Central, Southeast, Southwest, Northeast, Northwest.

The growers of these crops may be large commercial, small commercial, or home garden growers. There are many of them in all parts of the state and their degree of success with these crops varies a great deal. The potential return on many of these crops justifies a relatively high investment in a total program of growing. University personnel and some private growers have demonstrated that high yields of high quality crops can be produced in most years with some of these crops. To the extent that these crops are important, more demonstrations could be run and the necessary procedures emphasized. Demonstration plots require good facilities and constant attention by interested and qualified personnel.

Dutch Elm Disease

Districts--Southeast, Southwest, Central, Northwest.

This disease has been identified in about 37 counties in Minnesota. The number of varified cases in 1969 equalled the total number in all previous years since 1961 when the disease was first found. In 1970 we can expect another accelerated increase in cases and the addition of more counties to the list having positive cases. This disease is costly no matter how it is handled. In a period of ten years, it costs about \$80 per tree for protection or \$80 per tree for removal if it dies. These costs are estimated and could be higher. Trees in wild areas are not protected; only trees in towns and cities can be economically protected. Present recommended controls have been successful where they have been applied thoroughly; half-way measures are a waste of money. We are looking for a new breakthrough in control, but nothing spectacular is in sight. The University and the State Department provide information on control, but the municipalities make individual decisions and provide funds and do the work.

ENTOMOLOGY

1. Insect Infestation of Field Crops

- a. Insects comprise a group of important limiting factors to crop production in Minnesota. The annual loss from insect infestation may reach 20 percent. New knowledge about insects and the development of integrated insect management have reduced the threat of severe crop losses from some of these insects. The need for improved techniques for managing current insect populations as well as newly introduced species is essential, particularly with the greater legal restrictions on chemical control practices.

2. Insect Infestation of Post-Harvest Crops

- a. Losses to stored grains and cereal products in the United States including the cost of prevention and control, approaches 1 billion dollars annually. Discussions on the increasing world population and the consequent increased food requirements focus almost all the attention on food production and little on food conservation. In addition, the importance of stored-product entomology has not been fully appreciated because the damage is of an insidious nature. Neither has the association between stored-product insects and pathogenic microorganisms or mycotoxins been investigated properly. Such contaminants become more important with the expanded use of "convenience foods" to feed our growing human population.

3. Proper Use of Pesticides

- a. The use of chemical pesticides presents some problems and places great responsibilities on those who use, recommend or sell them. Only through educational programs can people be made aware of these responsibilities.

4. Pest Control Problems for Homeowners

- a. As more people move to the suburbs, they have more time for gardening and landscaping. During this time they frequently encounter problems associated with household, garden or lawn insects and they need assistance in solving them.

5. Youth Projects

- a. We must rely on the younger generations to provide the expertise needed to continue and expand all phases of the biological sciences. Entomologists have been negligent in bringing their profession to the attention of our youth. Consequently we find challenging entomological positions in teaching, research, and extension going unfilled.

Dairy  
Southwest District

SITUATION: Total dairy cows in Minnesota reached a peak of 1.7 million in 1943. There has been a reduction nearly every year since then. By January 1, 1970, dairy cow numbers in Minnesota may be below one million for the first time in over 60 years. Dairy herds have decreased from 165,000 to 46,000 during the past 25 years. Average milk production per cow has increased from 4,600 lbs. to 9,710 lbs. during this time so total milk production of just over 10 billion pounds is greater than a quarter of a century ago. During the past year, Minnesota slipped into third place in milk production below Wisconsin and New York. Minnesota leads all states in butter and dry milk production. 80% of the milk production of Minnesota is marketed outside the state mainly as butter, milk powder and cheese. These products must meet the quality standards of the states where sold. 18.6% of all dairy cows in Minnesota are enrolled in the DHI program. This compares with 3.0% in 1950, the first time it reached this percentage. In 1968, cows tested in the DHI program averaged 12,717 lbs. of milk or 36% greater than the cows not on test with an average of 9,030 lbs. The net annual returns for labor per cow was \$198 or \$103 greater for the average DHI cow tested than those not tested.

There has been a great decrease in milk cows and increase in beef cows in northern and western Minnesota, the maintenance of dairy cow numbers above state average in an area extending from the S.E. corner of the state to Becker County and the decrease in both dairy and beef cows in several south central counties where corn and soybeans have taken over as a cash crop. In 1959, every county in Minnesota had more dairy cows than beef cows but by 1969, 25 counties had more beef than dairy cows.

These trends will undoubtedly continue with over 80% of the dairy cows concentrated in about 30 counties from S.E. Minnesota to Detroit Lakes by 1975.

Taking the five supervising districts, the following situation exists and the following suggestions are made regarding extension programs. All the offered programs will fit each district though the approach in presenting the programs may differ.

#### S.W. District

Dairying is of relatively minor importance except in Douglas and the east one-half of Pope County which are adjacent and part of the main dairy area because of topography, soil type, markets and less opportunity for large scale crop farming. The four counties in the S.W. corner have also maintained dairy cow members well because of topography, somewhat drier climate so crops are not as certain, some Hollander communities and especially the Sioux Falls milk market, which has been the highest outlet for Minnesota dairymen for some time. Dairying will continue to decrease in the S.W. district, especially in the other counties not mentioned above, because of large farms easily adapted to large operations in crop production. The labor available can be utilized better than in dairying on most of these farms. Those dairymen continuing are some of the best in the state because only efficient herds can compete with alternatives available. Dairy extension should be on a multi-county basis and oriented to specific problems of the more specialized dairymen since those who are not doing a good job of dairying will not stay in the business.

## Why The Changes In The Dairy Programs Offered

### Those Not Changed -

These are relatively new, are in fields that need much attention at present to get caught up in presenting new knowledge available on the subjects. Will serve as now developed for coming two years or more.

### Those Being Modified -

Dairy Farm Tours - Some suggestions are made to make these more effective as a teaching method.

Dairy Forum Series - Organized on specific subjects so as to recruit personnel more efficiently to cover the subject well. Also, provides alternatives for agent to select the topic desired.

Dairy Seminar Series - These have served a purpose well for past eight years. It is felt a different approach now will be more effective so the former dairy seminars are not being offered this year.

Professional Improvement Dairy Seminars - These never caught on because they were never really developed locally or they didn't have appeal as outlined. So seven specific subjects are suggested with the thought each will appeal to a specific group. These will not be effective unless the county agent contacts and enrolls interested people in them.

### Those Being Added -

Dairy Cattle Nutrition and Feeding Schools - This is pulled out of the dairy seminar series and expanded to answer present feeding questions as well as presenting basic background information.

Dairy Management Planning - One of the real questions of present dairy farmers is "Where do I go from here and how?" Should I go out of dairying, stay where I am or expand? What are the industry trends

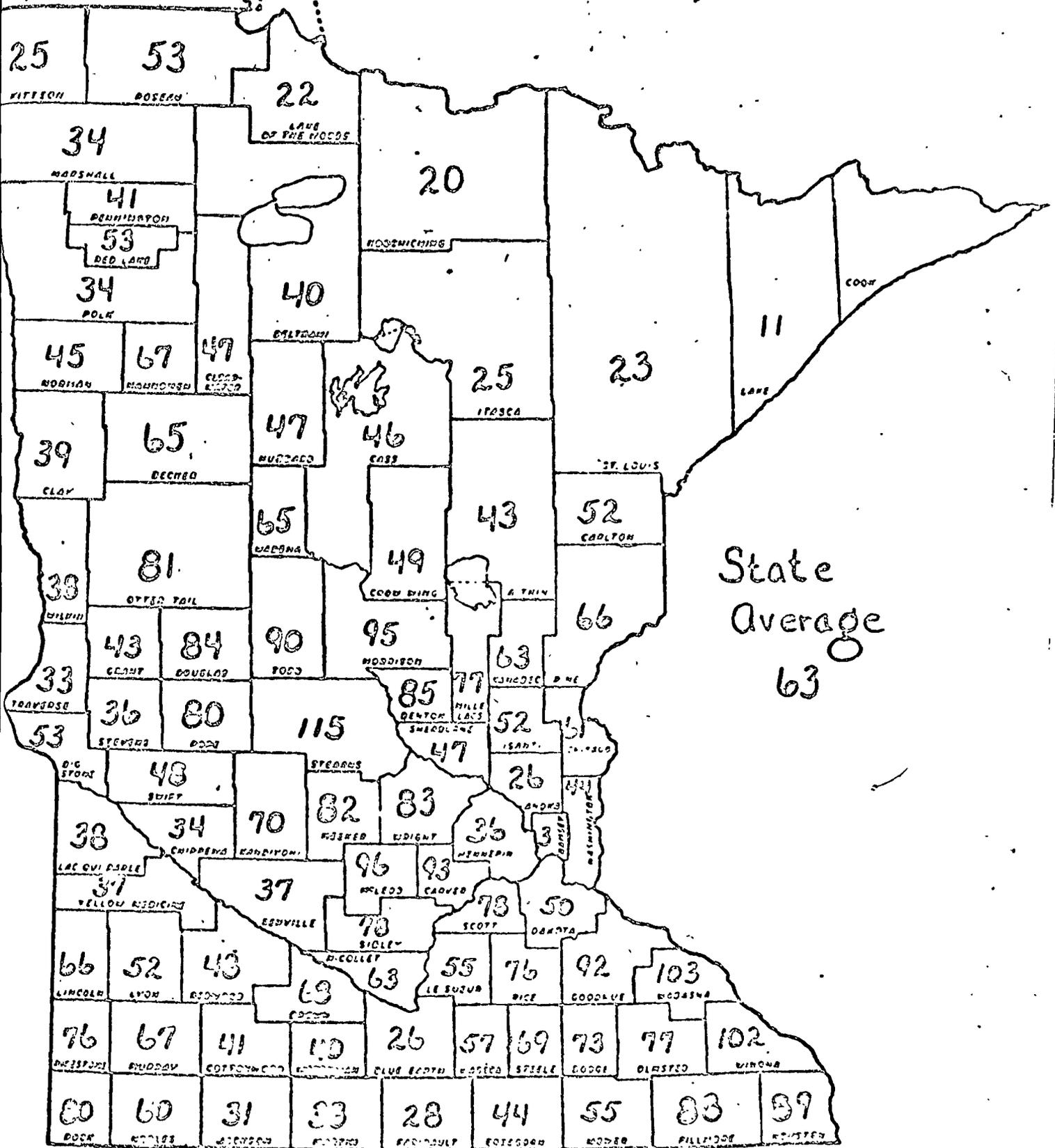
that I should consider in deciding? How can I best use available capital and credit? What type of housing and equipment will best meet my needs and at what cost? How to fit these matters into availability and use of capital? How do these fit other alternatives and possible returns on investments available to me? Am I a good enough dairyman to consider expanding?

This program is designed to help the dairymen in analyzing his situation so as to arrive at a better answer to these questions. Costs are so great that all possible mistakes should be avoided.

The Future of Dairying - This is designed to present as complete a picture on the future of dairying as possible. As the contents specify, this covers several areas that affect the future of dairying as a business. This program will fit in well with the Dairy Management Planning Program listed above. Some counties may wish to schedule both of these on successive weeks.

Calf and Youngstock Management - This covers all phases of calf raising and leads into feeding and management of replacement females in the dairy herd and especially on how to best utilize male calves of the dairy breeds. Should they be sold at birth, raised as veal, raised and sold as feeders, or fed out as finished steers. What are the costs and returns from each alternative? What facilities are needed? A complete analysis so the individual dairyman can decide what is best for his individual farm circumstance.

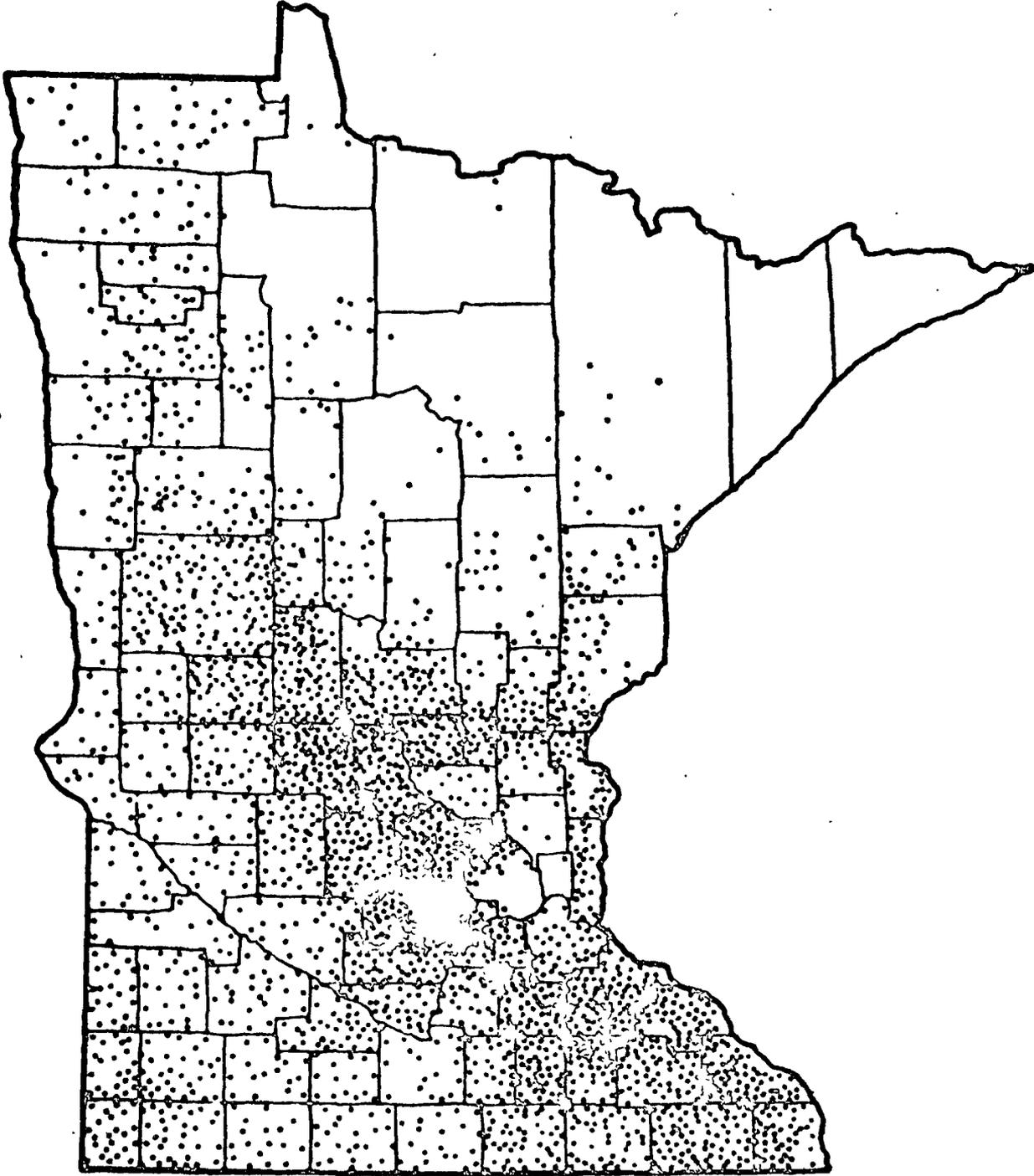
# % Cows 1968 of 1943



State Average  
63



# MILK COWS AND HEIFERS ON FARMS, JANUARY 1



One Dot=500 Cows and Heifers



## BEEF CATTLE (Southeast, Southwest Districts)

### Situation.

Beef cattle feeding continues to increase in Minnesota. There are considerable resources for continued expansion in cattle feeding, particularly in the southern one-half of the state. About 585,000 head of cattle were on feed on January 1, with about 1,900,000 head slaughtered this past year. See attached sheets on Cattle Placed on Feed, Beef Cows and Heifers on Farms, and Cow Population Other than Dairy.

Beef cow numbers have expanded in the southeast and southwest areas of the state. Beef cow numbers increased to 518,000. Eighty percent of these herds are commercial while the rest are purebreds. Beef cow herds fit the feed and labor supply in most areas. Many farm residents who work off-the-farm can supplement their income and utilize more of their resources with a beef enterprise.

### Objectives of Feed-lot Cattle.

To provide cattle feeders with current information on:

1. Feed-lot rations and feeding regimes on cost cutting.
2. Proper balancing of feed rations.
3. Protein and mineral supplementation.
4. Use of feed additives.
5. Feed-lot management.
6. Feed-lot health program.
7. Housing and feed-lot arrangements.
8. Economic considerations and outlook.
9. Proper selection of profitable meaty cattle.
10. Proper marketing at desired weight.

### Plan of Action.

1. An in-depth series of meetings will be held in various multi-county areas. This series will take 3-5 days, dependent on the clientele requests.
2. Single county beef feed-lot nutrition management meetings will deal with specific problem areas.
3. Beef feed-lot tours with a one-half day formal meeting will be used to demonstrate successful operations and technology.
4. Beef feed-lot forums. A group of specialists will present current research findings in a brief stimulating presentation to precipitate questions from the audience. The forum will primarily be an on-the-spot problem solving function.

### Objectives of Beef Cow Herds.

To provide beef cow producers with current information on:

1. Basic nutritional requirements of the beef cow and developing calf.
2. Application of these principles through practical ration formulation with proper protein, vitamin, mineral, and energy balance.
3. Feeder cattle production through proper breeding, feeding, marketing systems.
4. Building and feeding facilities.
5. Economic considerations.
6. Herd health programs.

## BEEF CATTLE (Southeast, Southwest Districts)

### Plan of Action.

1. An in-depth series conducted over a 3-4 day period will be held in a multi-county area.
2. Single cow beef cow management meetings will deal primarily with specific problem areas.
3. Beef cow pasture tours will demonstrate proper management, breeding and nutrition practices.
4. Feeder cattle auctions will be used to demonstrate difference in beef calf value and alternatives in marketing.

### Objectives of Beef Cattle Performance Testing.

To provide an on-the-farm beef cattle performance testing program which will:

1. Realize greater profit from their beef cow herds.
2. Give a systematic measurement of difference among animals in traits of economic value.
3. Record these differences in a permanent records.
4. Help the breeder select and cull individuals on genetic merit.

### Plan of Action.

1. Individual breeders will be encouraged to continue to collect records on their herds through the aid of the state specialist, county agents, of other officials designated by the Minnesota Beef Cattle Improvement Association.
2. Multi-county, or single county meetings.
3. Area and county weighing, grading and identification demonstration.
4. Cooperate with state beef organizations to sponsor state beef field days.

## SHEEP (State wide)

### Situation.

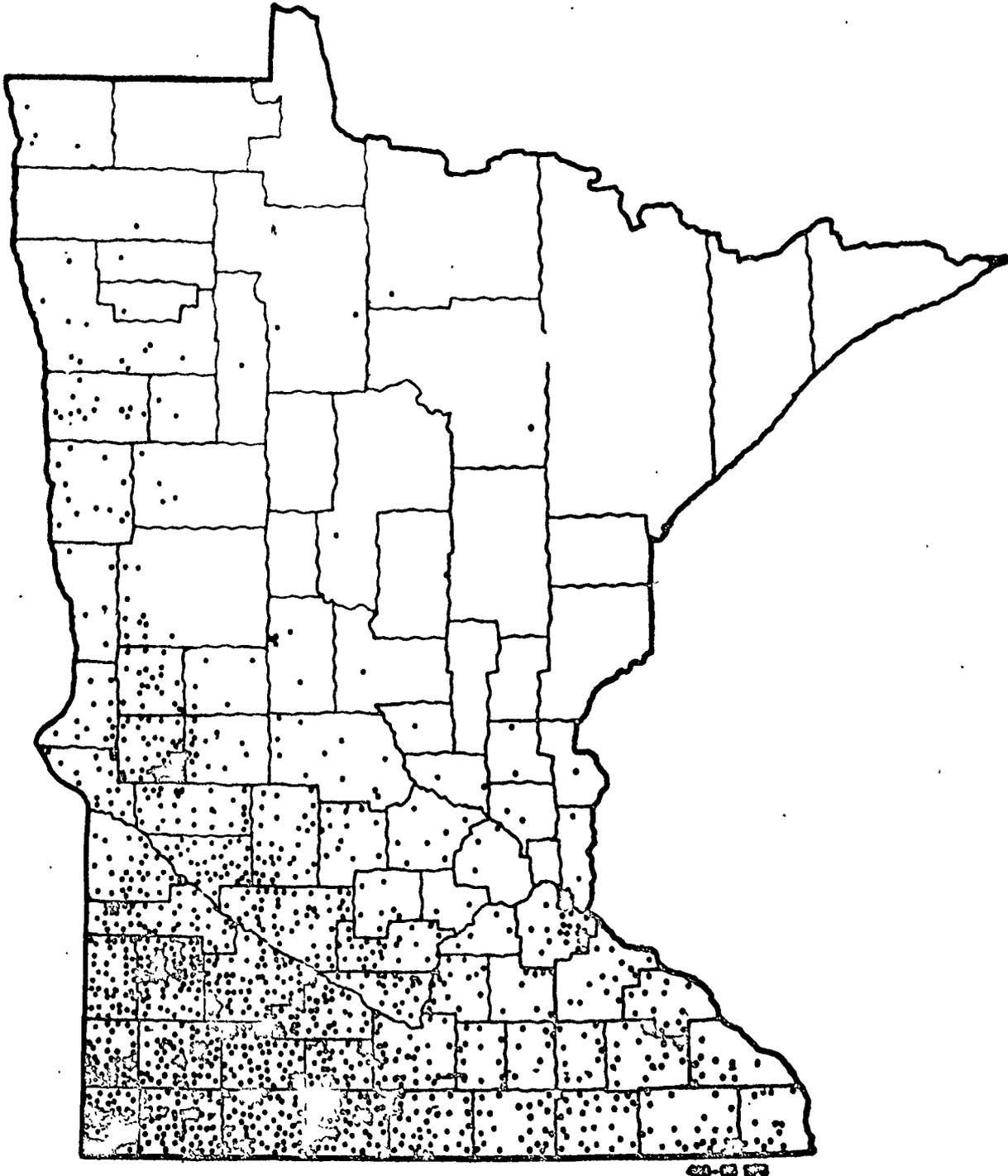
The sheep population continued a downward trend and are at the lowest level since January 1927. The number of sheep and lambs on feed January 1 was 12 percent less, while stock sheep inventory was down 14 percent. Ewes, one-year-old and over, and ewe lambs under one-year-old were down 14 percent since a year ago. (See attached sheet Stock Sheep on Farms.) Along with fewer flock owners, it is apparent that care and management of Minnesota flocks has improved, however, much improvement must still be made.

### Objectives of Sheep Programs.

To teach the principles of breeding, selection, nutrition and management practices for the improvement of lamb production and realize a greater profit for farm flock and farm sheep feeding regimes.

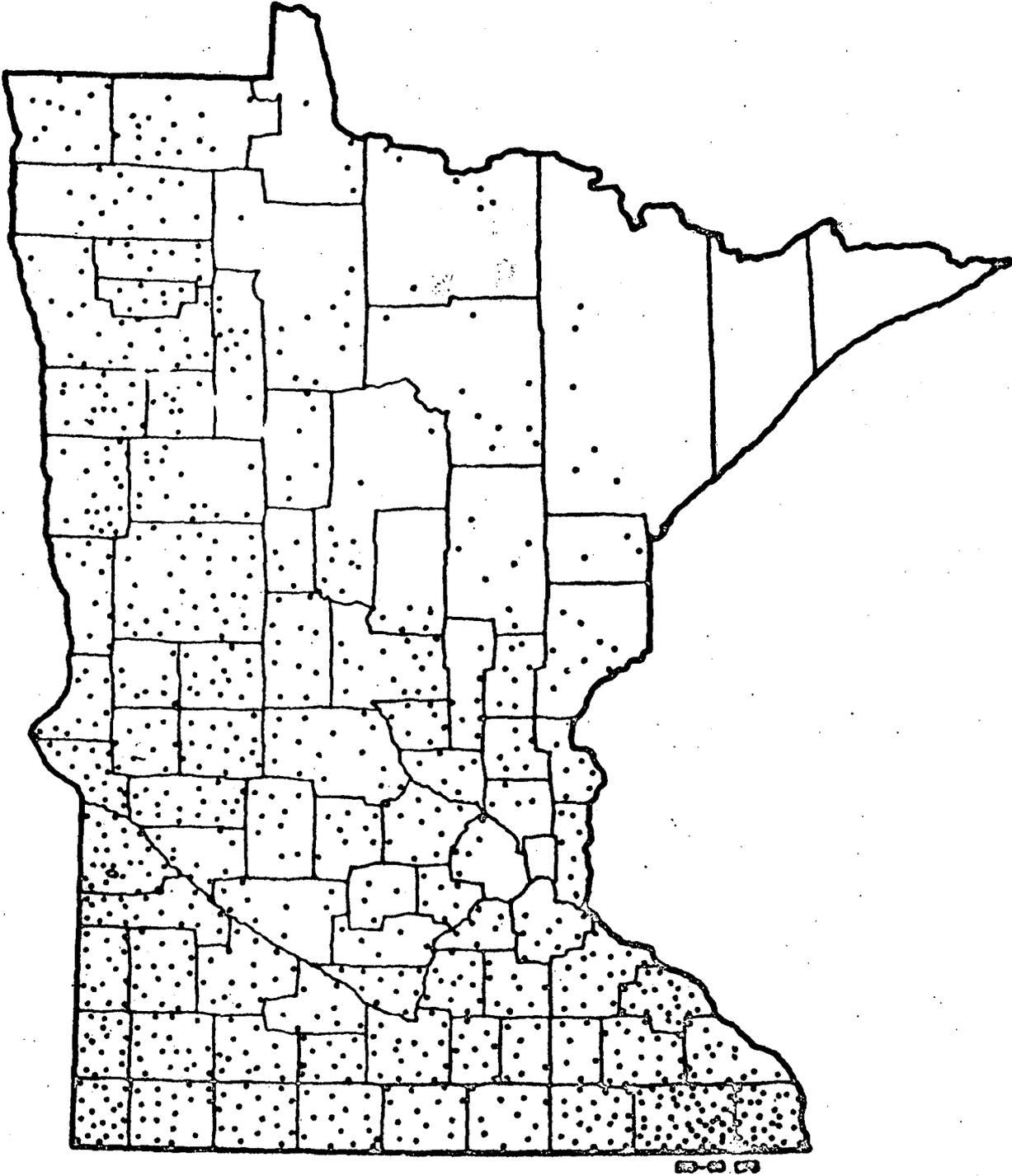


# CATTLE PLACED ON FEED



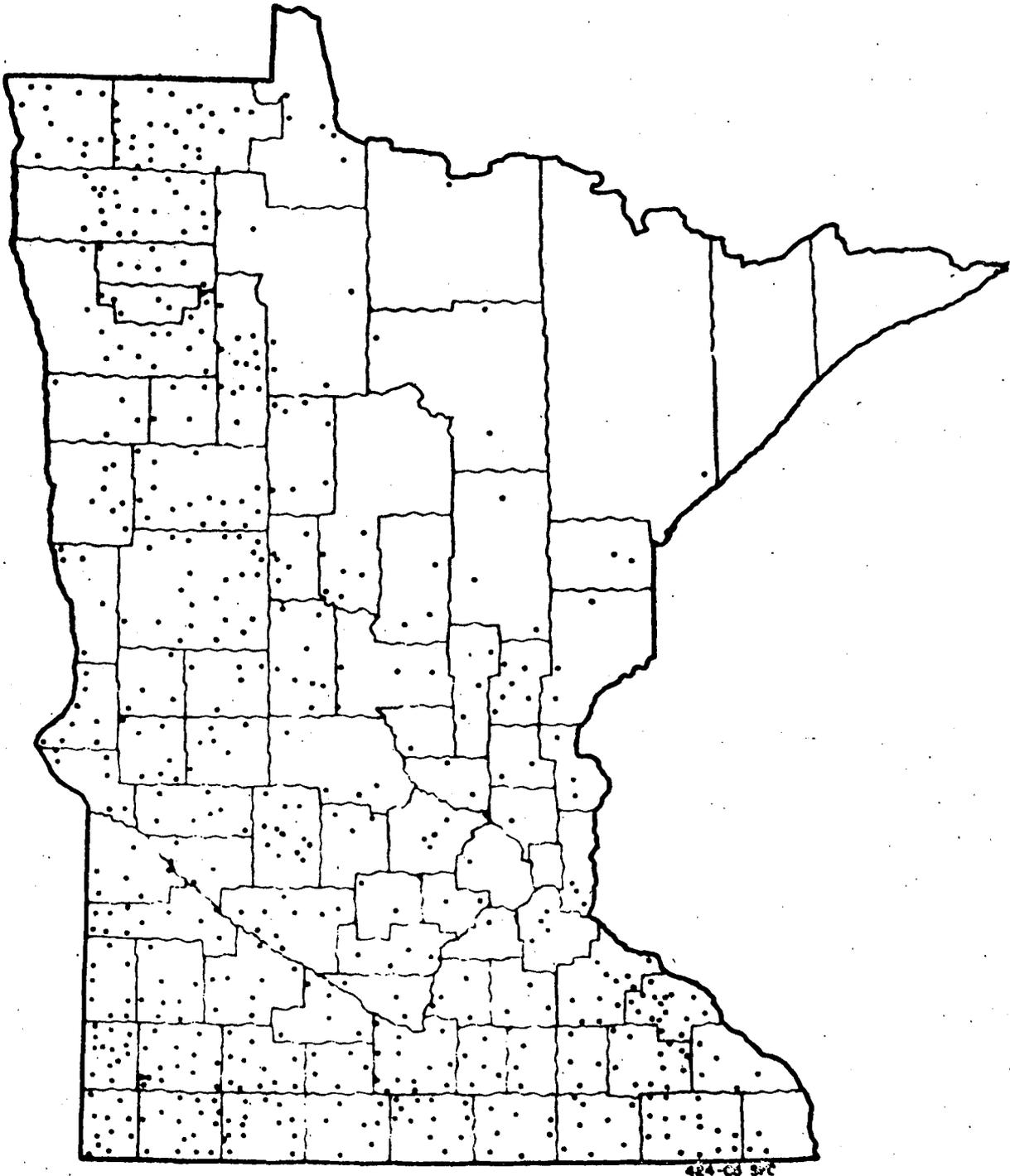
One Dot = 500 Cattle

# BEEF COWS AND HEIFERS ON FARMS, JANUARY 1



One Dot = 500 Beef Cows and Heifers

# STOCK SHEEP ON FARMS, JANUARY 1



One Dot = 1,000 Sheep

## SWINE (The State)

### Situation.

The distribution of hogs in Minnesota is illustrated on the accompanying map, showing "Sows Farrowed". For many years Minnesota has produced about six million hogs annually. This level of production will likely continue. Certainly feed and other inputs are available for expansion if the present profit potential continues.

There is a rapid and continuing decline in number of producers. A survey of swine short course participants in 1967 showed that 35 percent of these farmers produced 500 or more hogs annually; 9 percent produced more than 1100 hogs. Even then these statistics do not apply to all hog producers in Minn. They do indicate the trend to fewer, but larger units. These specialized producers keep up-to-date on both popular and scientific or semi-scientific publications. This widespread information often raises additional questions or develops a need for help in evaluating the information and putting it to use. Often such producers want answers to very specific questions and solutions to specific problems. At times individual consultation would appear to be needed.

We still have concern for the smaller producers. The problem is how to reach them with information that could help them. Certainly rather elemental principles on breeding, feeding, management, etc., are needed. How can these producers be made to realize their need and be stimulated to do something about it?

Some general plans or programs that might generally apply for Minnesota follows:

### Problems and Interests.

The most common questions or items of interest seem to be about as follows (in approximate order of amount of interest).

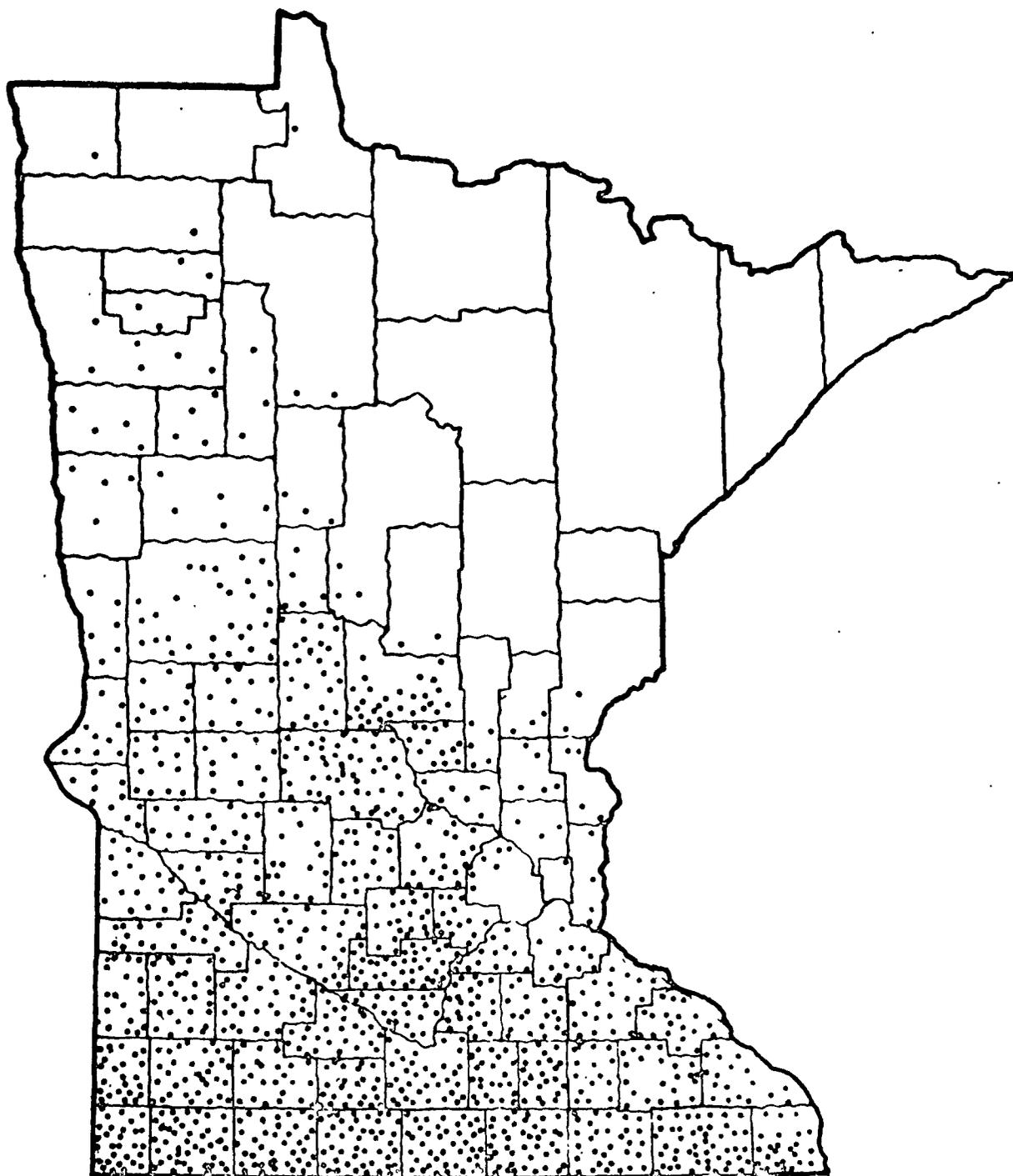
1. Buildings, equipment, feed storage and handling.
  - a. planning and construction.
  - b. economics.
2. Disease control and herd health.
3. Management.
  - a. general overall planning.
  - b. general herd management (especially the breeding herd).
4. Nutrition, feeds, feeding (including new feeds, methods of and affect of processing, etc.)
5. Carcass evaluation and information.
6. Breeding (genetics and breeding programs).
7. Marketing.

Various types of programs or procedures might help answer or solve these.

### Programs.

1. In depth short courses, preferably multi-county, may still be held. These would be 2 to 4 day programs. Such programs probably are of less interest than formerly.
2. One-day programs in breadth, rather than depth, such as the Experiment Station Days. These help keep producers up to date on latest research and information, but probably do not provide all that is desired on "action programs".

# ALL SOWS FARROWED



One Dot = 500 Sows

SWINE (The State)

3. Swine forums or seminars; these have potential and might help replace the short courses; they can be made quite specific to meet needs. For example one year one might have a one-day forum on diseases and management as related to disease control. The next year's forum might be devoted to buildings, equipment and perhaps economics of various systems. Other examples could be used. Of course more than one, one-day forums could be conducted in a year. Over a period of three or four years most topics might be fairly well covered.

One advantage of these forums is the lack of formality. Producers can have a chance to ask questions. Also on some topics, such as management, the producers themselves can be "instructors" through the discussions; they have a great deal of knowledge that they can share.

4. General meetings and events; occasionally something on swine production can be, and often is, included in more general community events such as crop-shows, barrow shows, etc. These do not permit much educational depth or breadth, but often are means of reaching farmers and others that would not attend a specialized meeting.
5. Tours; these are discouraged because of disease and other problems. The information often has to be too general and too short.
6. Mass-media; T.V., radio, news articles, circular letters, etc., could be utilized far more than they have been.
7. Consultation and personal assistance; there still seems to be a big demand for assistance on specific questions and individual planning. The specialized producers probably wish more of this than even smaller producers. Perhaps more specialized, detailed publications would help. Specialist help probably probably can't be available for most such assistance; area livestock agents will probably fill some of the need. In the future more consultants will probably be available for a fee.

SWINE (Central, Southwest, and Southeast Districts)

Because these districts have the greatest concentration of hogs and because hog production is shifting rapidly to larger units, most of the programs outlined in the general Minnesota section apply. These producers seem to want and accept the in-depth plus breadth programs. They also seem to be the ones that have the most specific questions and would like considerable individual, specialized consultation.

More use might be made of television and/or telelecture courses so that more resources could be mobilized to assist.

Perhaps producer seminar groups could be formed on either a county or multi-county basis. In these seminars the producers themselves would present reports and discussions on some of their own management and other procedures. The top producers have a vast store of information that might be utilized.

SWINE (Central, Southwest, and Southeast Districts)

The type of forum, or seminar, discussed in the general section on swine seems particularly suited to these districts. In some cases some of the questions might be submitted a week or more before the forum so that the specialists, or others, could be better prepared, not only for the oral presentation, but with printed material.

The county agents should discuss any new ideas or program suggestions with appropriate specialists. There are undoubtedly many ways or methods of educating producers that have not been tried.

In the northern areas of the Central and Southwest Districts there are still many feeder pig producers. Some of these are employed off the farm or for other reasons do not seem to accept programs lasting all day for two or three days. A one-day program in breadth, but only moderate depth, has appealed to these producers in the past and probably still will. These programs need to be aimed specifically at feed pig producers. Actually the program could be somewhat similar to the forums. One might plan on a two or three year basis to insure that most of the desired topics would be covered.

MEAT (State wide)

Situation.

A limited meats program has been conducted over the past years. These programs have been in conjunction with the existing programs to emphasize the desired end-product. Since the end-product of all meat animal production programs is the production of a nutritious, wholesome, high quality end product, we need to continue this emphasis as well as presenting to the consuming public the changes in, and the merit of, quality meat products.

Objectives.

To teach the changes in carcass composition and quality, and to show how these changes influence consumer acceptance. Assist producers in selection of high quality meaty breeding stock through carcass evaluation. Increase consumer knowledge of meat quality and its influence on nutrient value and palatability characteristics.

Plan of Action.

1. One-day beef, pork or lamb consumer seminars including topics such as:
  - a. meat quality and composition discussed by representatives from meat processing, retailer, nutritionist, producer and researcher.
  - b. market concepts for recognizing meat quality.
  - c. production factors which influence meat quality.
  - d. producers responsibility in the production, promotion and sale of meatier meat.
  - e. knowing wholesale and retail cuts.
  - f. meat preparation and cookery.
  - g. economic and nutritional consideration in selecting meat cuts.
  - h. grading and value difference potential.

2. General events.

General community events such as carcass contest shows, locker plant exhibits and shows, etc., do allow some means of presenting educational materials. These events are usually sponsored by an organized group and may act as a vehicle to reach some producers and consumers which may not attend a more structured program. These types of shows should have some type of formal presentation explaining a phase of quality meat production.

3. Mass media; T.V., radio, telelectures, news articles, should be utilized to a greater extent.

Poultry  
Statewide

Situation

Minnesota is facing increased competition due to expansion of egg production in other areas. Production is still somewhat cyclic and a wide variance in egg prices results. In order to remain competitive the Minnesota industry must strive to gain greater production and marketing efficiencies and improve product quality in order to maximize returns. Problems have no district orientation, but must be met on the basis of the needs of the industry in a specific location.

Priority Problems

1. Improvement in product quality.
2. Disease control and prevention programs.
3. Proper environmental control and rearing arrangements.
4. Emerging problems in waste disposal.
5. Economic assembly for marketing.

Program Direction and Methods

1. Timely articles in Poultry Patter newsletter.
2. More complete series of Fact Sheets.
3. Work with producers and allied industry personnel individually and in meetings to improve egg quality and increase production and marketing efficiencies.
4. Cooperate with trade associations and government agencies in their programs to improve poultry production and product quality.

Submitted by Melvin L. Hamre

Turkeys  
Statewide

Minnesota is the leading state in turkey production, raising about 15 percent of the national crop. Minnesota is in a good position to maintain its leadership but the growers and related industry must utilize the technology available to them.

The production of turkey is still very seasoned, with peak poult production in March, April, May and June, with the heaviest processing coming September, October and November. Turkey is still a holiday meat. But as further processing develops there will be a need for fresh, large-type turkeys the year-round. This will force year-round production of large-type turkeys, as well as the fryer-roaster. Confinement rearing of large toms in insulated buildings will be stimulated during the winter months. Associated with this will be new disease problems, different nutritional requirements, and grade problems requiring changes in management practices.

Submitted by Robert W. Berg

PRIORITY PROBLEMS OR EDUCATIONAL NEEDS

1. There is a need for better distribution of production of large turkeys because of the need for fresh turkeys for further processing.
2. Cholera and leg weakness have been on the increase.
3. Damp weather has created moldy feed grain which needs to be salvaged.
4. There is an increasing interest in contracts and kind of contracts available to the turkey grower.
5. Make the consuming public aware of the various turkey products that are available and how they can be used.

RECOMMENDATIONS FOR PROGRAM DIRECTION OR METHOD

1. Workshop at the Minnesota Turkey Convention.
2. Area turkey meetings.
3. Display of turkey products at the Minnesota State Fair in cooperation with the industry.
4. Monthly articles in Gobbles Magazine and Turkey World.
5. Farm and industry visits and office calls.