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HOW DO COUNTY EXTENSION AGENTS AND EXTENSION SPECIALISTS
USE THE DEMONSTRATION TECHNIQUE FOR EXTENDING WEED RESEARCH
FINDINGS TO FARMERS IN MONTANA

by

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ABSTRACT

GURSOY, ORHAN VEDAT. How do County Extension Agents and Extension Specialists Use the Demonstration Technique for Extending Weed Research Findings to Farmers in Montana. Professional Paper M. S. 1976, Montana State University, 48 pp., Library, Montana State University, Bozeman.

Purpose: 1) Determine use of the demonstration by county agents and extension specialists in disseminating weed research findings, 2) where agents received information about weed control and other characteristics relating to use of demonstrations as a teaching technique.

Method: Data for the study were collected from a mail questionnaire to Montana county extension agents and interviewing two extension specialists and five agents.

Findings: 1) Seventy five percent of agents used demonstration in disseminating weed control methods to farmers, 2) they used a variety of sources to obtain weed research findings, and 3) to conduct demonstrations, 4) method and result demonstrations were used, 5) needed help in setting up demonstrations, 6) demonstrations had been used from 0 to 20 years, 7) farmers were educated through demonstrations, 8) demonstrations were carried out under farm conditions 9) field days were arranged with media, 10) reportedly farmers generally were receptive to new research findings, 11) weeds reported to be most difficult to control were leafy spurge, Canada thistle, field bindweed, Russian knapweed, white top, dalmation toadflax, wild oats, 13) financed by county weed district, and 14) generally performed by county agents and weed crew, 15) variety of dissemination techniques were used, 16) publications distributed, 17) results were recorded, 18) extension specialists did not report using weed control demonstrations but worked cooperatively with county extension agents.

CHAPTER I

INTRODUCTION:

Weeds compete with crops for soil nutrients, moisture, sunlight, and space; reducing the level of crop production. A yield decrease of 15 to 30 percent has been attributed to the lack of weed control (4, 6). Initiation of a weed control program often results in an increased crop yield which will help to solve food shortages in the future.

The weed control problem presents a major challenge to the most efficient farm operations, because of the increasing labor and other production costs thus reducing net income. Weeds hinder complete mechanized production of many crops. In addition to lowering crop yield and quality, weeds cause many other losses such as poisoning of livestock, reduction of land values and increase problems with insects and diseases (6).

The development of an extension program to orientate people to the idea of weed control through the use of a structure learning process such as demonstration, is designed to change attitudes and influence opinions (2). The extension program as a part of their role, is responsible to transfer new technical knowledge to be utilized at the farm level. This transfer of knowledge is accomplished through the use of communication techniques composed of printed materials, audio and visual aids, and plot experiments. These communication sources provide the farmer with information to cope with his problems in order that he can obtain advanced levels of efficiency.

Purpose of Study

The purpose of this paper is to explore the use of the demonstration teaching method in presenting research advancements to farmers. This

technique enables the extension worker to disseminate new findings and advancements in weed science to farmers. Of particular concern is determining how the demonstration technique is effectively used for extending weed research developments to farmers in Montana.

Need for Study

Weeds are a serious problem to persons in agriculture and are harmful in a variety of ways. In order to obtain maximum economic return from growing crops, weeds must be controlled. Through today's technology several methods have been developed for controlling weeds. Farmers often do not realize that weeds are a problem and cause reductions in yield.

Introducing new research findings and motivating farmers to use these practices is often a problem; until they use modern weed control methods and see for themselves, a resulting increase in crop yield, they will not adopt improved methods.

Since seeing causes more believing, it is essential to demonstrate to farmers the methods of weed control pertaining to their farm conditions, and have them understand that weed control could bring higher profits. Thus, it becomes the challenge of the Extension Agent to demonstrate weed research findings to farmers in such a way that they are willing to accept the demonstrated practice and replicate these practices on their own farms and ranches.

Objectives

1. To determine how County Extension Agents use the demonstration technique as a method of extending weed research findings to farmers in Montana.

2. To determine how County Extension Agents learn about weed research findings.
3. To determine which Montana weeds are difficult to control.
4. To determine the acceptance of farmers to new weed research findings and advancements.
5. To determine how Extension Specialists use the demonstration method for extending weed research findings to County Extension Agents and farmers in Montana.

Assumptions

In conducting this study the following assumptions were made.

In Montana, County Extension Agents and Extension Specialists use the demonstration technique as an educational tool in extending weed research findings to farmers.

Limitations

Due to limitation of time and personnel resources, the researcher determined that it would be essential, in the main, to use a mail questionnaire to collect data for the study. Five Extension Agents were personally interviewed and a map is included in Appendix A, page 44.

Definitions

Although the researcher strived to use non-technical terms there are, by necessity, those which should be defined at the outset.

Change: Any significant alternation by behavior which is intended to benefit the people involved.

Change Agent: A person who facilitates planned change or innovation.

Change process: The process of how change or innovation comes about.

Client: A person, group, organization or community which the change

agent serves.

County Extension Agent: A joint Federal-State-County employee, a member of a State University Staff, assigned to a county area to extend the State University and U.S.D.A. knowledge and experiments to the people in his area.

Demonstration: It is a teaching technique that makes extensive use of the sense of sight and it seems the instinct of imitation (18).

Extension Specialist: A University Staff member with expertise in a given area who assists the county field staff and farmers with questions and/or problems.

Innovation: Any change which represents something new with benefits to the people being changed.

Noxious Weed: A serious weed that not only produces by seed but also may spread by underground roots, stems, and other reproductive parts, and which, when well established, are highly destructive and difficult to control by ordinary cultural practices.

Resources: Persons or things which can be used to improve an innovation or an innovative process.

Weed: An undesirable plant, competing with crops for light, space, soil moisture and nutrients which man deems to be more desirable.

Methodology

After a review of the literature and related research, the purpose and objectives of this study were formulated. It was determined that due to limitations of time and transportation, a mail questionnaire would be employed. It was decided to conduct a personal interview using the same carefully designed questionnaire for five County Extension Agents

out of forty eight, and two Extension Specialists. This questionnaire was developed by researchers with the assistance of Dr. Max Amberson and Dr. Douglas Bishop. A copy of the questionnaire is included in the Appendix, page 38.

The researcher was not known by any of the persons interviewed or to whom the questionnaire was sent. The researcher explained the reason for his study by letter and asked them to answer each question to the best of their knowledge.

On June 20, 1975, a survey questionnaire accompanied by a cover letter was sent to all County Extension Agents in Montana, with the exception of five Agents interviewed. The County Agents were asked to return the completed questionnaire in the stamped, pre-addressed envelope provided them by July 7, 1975.

On July 24, 1975, a follow up letter was sent to those Agents who had not replied, and asked them to return the questionnaire by August 10, 1975.

Data from the questionnaires were then tabulated on master sheets, compiled into tables and analyzed by the researcher.

CHAPTER II

REVIEW OF LITERATURE

History of demonstration

A review of literature concerning the use of demonstrations reveals that the demonstration technique was developed by Knapp and other pioneers in Agricultural Extension at the beginning of the 20th Century (14). These early educators discovered that the most effective way to get farmers to adopt better agricultural practices was to show them how to use these new techniques and let the farmers emulate them, then visually measure the better results (14, 18).

Prior to wide use of demonstration methods, model farms were established and operated by the Government. Through these farms, use of better seed and improved practices were stressed. However, in combating the boll weevil threat, cotton farmers rejected the system demonstrated on model farms with such statements as reported in Reck (13).

Sure, I could do as much if I had the Government behind me. He looked at the farm, shrugged his shoulders and farmed as he had always done. Seamen A. Knapp had found the answer in 1903, when he had induced the town of Terrell, Texas to back one of his outstanding farmers in an experiment. This farmer, Walter Porter promised to cultivate 70 acres of his farm according to the directions of the Department of Agriculture...

This demonstration idea differed from the use of model farms because the farmer was trying the new ideas on his own farm while his neighbors watched and formed their own judgments (18, 20). When a farmer adopts an innovation through his own experiments, he rarely or never turns back to his old practices (18).

Extension use of the demonstration

Since Knapp's successful experiment, the demonstration has been the basic teaching method of the Federal Extension Service of the United

States (14). The idea of demonstrating recommended practices was behind all early progress and success in Extension work. The demonstration method gives the Extension exceptional opportunity to use actual materials and equipment in its teaching (7, 13, 14).

The basic idea behind the demonstrating seems to be the instinct of imitation; wherein all new traits originate from one creative individual and are imitated by the crowd, therefore, it is simply the personal influence of one human being on another (7, 14, 30).

Type of demonstrations

As use of demonstration technique increased two main kinds of demonstrations were developed (1, 2, 6, 10, 13, 20).

Method or process demonstration involves showing and telling with verbal and visual explanation of a particular process to be implemented. This could be an idea or fact to organize, to lead, to perform, to operate or to test.

Result demonstration is used to prove the advantages of a recommended practice. It involves careful planning, a substantial period of time, adequate records and comparison of results. It is designed to teach others in addition to the person on whose farm the demonstration takes place.

However, a result demonstration involves a cluster of factors related to effectiveness of process, whereas the method demonstration usually involves a single and simple concept or idea. In case of both method and result demonstrations, diffusion of an improved practice or idea is the purpose of both forms of demonstrations (20).

The other way to classify demonstrations is based on the number of people who perform and conduct the demonstration (19).

Both result and method demonstrations can be further classified as:

Single demonstration is handled by one person from the beginning to the end.

Team demonstration is conducted by a group of persons and each of them performing a step or section of demonstration practice.

Characteristics relating to demonstration effectiveness

There are several factors, however, which relate to the effectiveness of the demonstration method (1, 6, 9, 14, 18). The following four basic factors speed up or slow down the adoption of an idea or innovation depending upon how the potential user perceives the innovation. Factors affecting the adoption of an idea which will be discussed are as follows.

The new practices that are high in cost generally tend to be adopted more slowly than do the less costly ones, however, regardless of cost, practices which produce high returns for money invested may be adopted more rapidly than those which cause lower returns (9, 17, 18).

New ideas that are relatively simple to comprehend and practice will generally be accepted more quickly than complicated ones. Practices whose operations and results are easily seen or demonstrated have a good chance of being accepted (9, 17, 18). If a new idea or practice competes with the existing ideas, values, beliefs and their needs, it will not be adopted rapidly (15).

The demonstrator who is much like his neighbors will be more effective than one who is economically, socially, or culturally different (9,15,17). Neighboring within the same socio-economic groups bring one into line with his neighbors situation (21, 26). Being a typical sample of the community

as a demonstrator, in many cases brings about better adoption of an idea.

Audience. An analysis of the audience is essential to determine the degree to which they are willing to incorporate new ideas. The degree of acceptance of an innovation is related to the innovational characteristics on the culture of receiving groups (28).

Farmers who are influenced by demonstrations are most likely to be influenced by other techniques (20). Most farm practices are functionally interrelated, frequently the adoption of one practice makes possible the adoption of many others (18).

The individual farmers who accepts new ideas are those who have some identifiable characteristics. They read more, participate in cooperatives, travel often, and are younger (22).

The characteristics of learners to be taught, the instructional objectives to be achieved by learners, the resources available for use, and the instructor's ability and performance are the criterias in selecting an appropriate teaching technique (14). The capacity of an individual to perform a certain specific task, frequent application of a skill through practice results in a greater competency, and the reinforcement principle which has proven so useful in programmed instruction have to be taken into account as the fundamental laws of learning in encouraging farmers to adopt new practices (4).

Community is the fourth factor which has an affect in adoption of a practice. The flow of information between demonstrations and audience does not take place in isolation. The demonstrators are more effective when they and their audience consider themselves to be the resident of the same community (8, 14, 20). Saxon (28) reports that:

The differential acceptance of farm practices varies as a function of status, role and motivation, socio-cultural systems, cultural changes, and problems with communication of information.

Havelock (6) suggests:

No group of human beings is completely isolated from the influence of outsiders. All systems and organizations exist within a context of other systems of which they are a part and upon which they are dependent. Therefore, the change agent must not only consider the characteristics of the particular client he is serving, but he must also consider the nature of the community, the larger social system of which his client is a part.

Learning relating to conducting demonstrations

Learning is often described as a change in response or behavior which can be measured by an act or performance by the learner. For learning to take place, however, it is essential for the learner to develop interest in the topic or material in which he hopes to learn more about. Developing interest is often impelled by an individual's personal biases, prejudice, distrusts, and closed mindedness about certain areas or topics. Ideally, therefore, adults should select the areas of study; likewise, let or help establish the objectives in a given learning situation (29).

The learner must become a partner in planning for learning; learning will be substantially improved if the instructor encourages learners to analyze the situation and formulate questions to which they need answers (26).

All learning is the result of physical and mental activity, (29) and conditioning (5). The instructor performs best when he sets the stage for learning and stimulates the learners to act. Because stimulating interest is a vital part of each teaching process, learners will enjoy their experiences more if, and when, the instructor first develops a system to get and hold his clients interest (25).

As it was mentioned earlier, the demonstration is a teaching method that makes extensive use of the sense of sight with the objective to show; it supports good principles of learning.

The most effective learning takes place through demonstration because the learners use more than one sense. In a good demonstration, the learner lives the situation, understands the meaning of the process and then fits it to his own condition. A criteria for judging a good demonstration then might be whether or not the learner used the information or method demonstrated. If the learner did make immediate application to solve a problem this indicates evidence of effectiveness.

Using demonstration techniques simplifies learning since it enhances action, participation, and is based on the learners needs. Learning by association with other related ideas or facts tends to produce added learning. If the learner has a clear understanding what he should achieve and not higher than his educational background and experience, he will learn much more rapidly and effectively. Memorization of facts is relatively ineffective as a teaching tool, however, repetition with practicing, vividness, and intensity tends to increase learning (29).

In addition to understanding how the demonstration contributes to the principles of learning the change agent must be able to apply these principles. He should be aware of teaching and learning relationships, adult behavior, and strive to average a satisfying situation while disseminating an idea or practice.

The diffusion process

Studies of farmers adopting new practices in Iowa (17, 27) have resulted in a concept called the "diffusion process". Lionberger (30)

defines the diffusion of innovation as:

The acceptance, overtime of some specific item, idea or practice by individual groups or other adopting units, linked to specific channels of communication to a social structure and to a given system of values of culture.

To be most effective, change agents, or helping professions, need to be aware of two interrelated processes. Knowledge of, and use of, these processes will help bring new ideas from their source of initial development to acceptance by farmers. These are called the "diffusion" and "adoption" processes. Diffusion refers to the spread of new ideas from originating sources to ultimate users, but the adoption is a mental process through which an individual passes from first hearing about a new idea to its final adoption (17, 18). A major difference between the diffusion and adoption process is that diffusion occurs between persons while adoption is an individual matter (9, 15).

Rogers and Lionberger have documented the several states that people go through in the adaptation of new ideas. The process of adoption itself is perceived as consisting of five stages (9, 15, 17, 18).

Stages of adoption. The individual learns about the existence of the new idea or practice but does not have information about it (Awareness). Mass media is very effective in this stage. One gets interested in the innovation and searches out more information (Interest). Mass media still plays an important role in this stage. The potential adopter makes mental application of the new practice and thinks about whether or not it fits his present and future conditions. From such an evaluation he decides whether to follow or reject this practice (Evaluation). Then he actually tries the innovation generally on a small scale to determine its utility

under his conditions on the way to making a final decision (Trial). Finally, the individual applies the new practice fully and continuously and believes in the benefit of the new idea or practice (Adoption). It is, of course, possible that a person may reject an idea or practice at any of the several stages.

In diffusing an idea, in any given population, it has been shown there are five categories of people in terms of their readiness to accept any new practice or idea (6, 7, 9, 14, 17, 18).

Types of adopters. It is possible to classify these people since they adopt new ideas at different times. This adoption pattern shows a bell shaped curve. The first to adopt new ideas are called (Innovators). They reportedly have significantly different personal and social characteristics from those accepting later. The second group which adopts the new ideas are (Early Adopters). They, too, have distinctive characteristics. The researchers (9, 14, 15) indicate about one in eight persons fit into this category. The majority of adopters, about seven in ten, or 68 percent, is covered by (Early and Late Majority). The next to last category of persons adopting an idea or practice is called (Late Adopters). They, too, possess different social and personal characteristics from those adopting earlier. The last group (Non Adopters or Laggards) refuse to adopt, or adopt late. Reportedly these people are older, do not participate socially or to as great a degree and don't read as much.

Communication in the context of this paper will be defined as an act to transmit the information or idea through a systematic route by using all available sources from one to another. Communication integration is the degree to which the units in a social system are inter-

connected by interpersonal communication channels (11,12, 15).

Reportedly innovators have a faster rate of adoption and a greater diffusion affect since they have a higher degree of interpersonal communication. The degree of communication is positively related to the rate of adoption (15).

There is always a lag between the origin of a new idea and its complete adoption (18). The acceptance of a new idea is a complex process involving a sequence of thoughts and actions. Usually decisions are made after multiple contact through various communication methods over a period of time (17). Bailey (20) indicates that neighbors and friends are important in influencing individuals towards adopting new ideas.

Neighbors and friends are becoming very important during the evaluation, decision making, and trial stages of an adoption process.

The use of influentials is one of the factors to be considered in an adoption process. Havelock (6) says:

An innovation will not be spread until the opinion leaders give their stamp of approval.

This fact is a clue to the change agent responsible for diffusion of an idea or practice if he must work through opinion leaders. At any stage of the adoption process some kinds of resistance may come from inside or outside with logical and well-defended reasons. A change agent has to be careful not to criticize for this resistance, unless he is able to demonstrate its superiority to the practice primarily being used (6).

The Role of Change Agent

Stevens (16) describes the change agent as follows:

He is a professional person who attempts to influence adoption

decisions in a direction that he feels is desirable, and serves as a communication link between a professional system and its client system.

Understanding both process and his client system is very important to a change agent, and needs to be aware of the effect of information and communication to the adoption of an innovation. He may also utilize all kinds of teaching methods, resources, and mass media system both before and during the diffusion process. While the entire processes are taking place it is necessary to keep essential records, evaluate outcomes, and plan for future changes.

The extent of promotional efforts by change agents is directly related to the role of adoption of an innovation. Once a certain percentage of the client system have adopted the innovation it may spread by word of mouth with little further effort from the change agent. A change agent should also take into consideration that some farmers will try any new idea that comes along, while others will accept only after it is proven in their neighborhood (9, 15, 17, 18).

A major concern of agricultural leaders is that of narrowing the time gap between the early and late adoption of recommended practices. Some new ideas and practices are accepted quickly and with little apparent resistance, while others are accepted only after years of effort on the part of agencies and leaders working with rural people (27). Rogers (15) notes the role of the change agent as:

The change agent often fills seven roles in the change process. He develops a need for change on part of his clients, establishes a change relationship with them, diagnoses their problems, creates intent to change in his client, translates this intent into action, stabilizes change and prevents discontinuances, and achieves a terminal relationship with his client.

Relative success of a change agent can be measured by the extent of change, orientation of his client and forward change, the compatibility of his program with his client's needs, working ability with opinion leaders, and his effort in increasing the degree of his client's ability to evaluate innovations (6, 14, 15).

In summary, demonstration is a teaching technique which makes extensive use of sense of sight (14). No learning occurs without using senses. A good demonstration involves a demonstrator who should have knowledge of the subject, a definite and accurate plan, time to demonstrate, adequate equipment, and a well planned display of the finished product (1). A simplified version of the above recommended strategy involves alerting the population to the existence of new practice through the mass media, arousing the interest in the new practice, identifying a small number of innovators ready to try out the new practice, organizing the early adopters to observe and evaluate, and repeating the cycle with the early majority, late majority, and late adopter groups (14).

In addition, the recommended practices must be practical, a demonstration has to be distinguished from an experiment, because one of the purposes of demonstration is to show a known and proven truth. It should be located in a community where the problem exists. The location of a demonstration ought to be easy to reach for the majority of the people concerned, and it must be representative of the area. The field day is a demonstration, yet should allow for face to face discussion, getting questions answered, exchanging ideas, and hopefully, people will become convinced (1, 6, 7, 8). Naturally many techniques are used in carrying out this strategy but the demonstration is the core of the process.

CHAPTER III

PRESENTATION OF DATA

The data presented in this chapter was collected using the research questionnaire which appears in Appendix A, and includes a presentation of data in tabular and narrative form. The data in Table 1 show the number and percentage of responses.

Table 1. Response to questionnaire.

		Response		Total	
		First	Second	No.	Percent
Persons contacted	No.	mailing	mailing		
County Extension Agent	48	27	13	40	80
Extension Specialist	2	2	--	2	4
Total	50	29	13	42	84

* N= represents the number of responses.

Questionnaires were sent to forty eight County Extension Agents, as seen in Table 1, twenty seven responded to the first mailing.

A follow up letter to non-respondents netted a return of an additional 13 questionnaires. This resulted in a total of 40, or 80 percent of the questionnaires being returned.

Both Extension Specialists responded, thus, making 42, or 84 percent return from the population studied.

Table 2. Age and sex of County Extension Agents.

		N=38		
Range in age	Age	Sex (Percent)		
	No.	Percent	Male	Female
20 - 29	9	23.68	100	--
30 - 39	11	28.94	100	--
40 - 49	9	23.68	100	--
50 - 59	6	15.80	100	--
60 - 65*	3	7.90	100	--
Total	38	100.00	100	--

* No agents older than 65 years of age.

Data in Table 2 show that all County Extension Agents contacted were male.

The largest single age group, 11, or 28.94 percent, was between 30 to 39 years of age. Nine, or 23.68 percent, of the Agents were between 20 to 29, and 40 to 49 years of age.

Table 3. Highest degree held and academic specialization.

Area of specialization	N=40					
	B.S.		M.S.		Total	
	No.	Per- cent	No.	Per- cent	No.	Per- cent
Animal Science	5	12.5	8	20.0	13	32.5
General Agriculture	5	12.5	2	5.0	7	17.5
Agricultural Education	1	2.5	3	7.5	4	10.0
Agronomy	2	5.0	3	7.5	5	12.5
Agricultural Economics	2	5.0	2	5.0	4	10.0
Range Management	0	0.0	3	7.5	3	7.5
Natural Resources	1	2.5	1	2.5	2	5.0
Soil and Irrigation	0	0.0	1	2.5	1	2.5
Plant Genetics	0	0.0	1	2.5	1	2.5
Total	16	40.0	24	60.0	40	100.00

Twenty four, or 60 percent of the Extension Agents contacted in this study had attained a Masters Degree as the data in Table 3 indicate.

Among all nine different academic areas the largest number 13, or 32.5 percent had earned their degree in Animal Science, while 7, or 17.5 percent had earned their degree in General Agriculture.

Table 4. Years employed in present position.

Duration	N=39		
	Total years of each group	No.	Percent
0 - 5 years	45	17	43.60
6 - 10 years	43	6	15.38
11 - 15 years	88	7	17.95
16 - 20 years	72	4	10.25
21 - and over	136	5	12.82
Total	384	39	100.00

Montana County Extension Agents have relatively short tenure in their present position. As the data in Table 4 indicate , 17, or 43.6 percent have been employed for 0 to 5 years while 7, or 17.95 percent have been employed 21 or more years of service in Cooperative Extension Service. The average period employed in present position is 9.85 years.

Table 5. Area County Extension Agents serve in square miles.

N-56*			
Area	No.	Percent	Total areas served by each group (sq mls)
Up to - 999 square miles	4	7.14	3,345
1,000 - 1,999 square miles	19	33.93	29,378
2,000 - 2,999 square miles	16	28.57	39,899
3,000 - 3,999 square miles	8	14.29	28,110
4,000 - 4,999 square miles	3	5.36	13,344
5,000 - 5,999 square miles	<u>6</u>	<u>10.71</u>	<u>31,248</u>
Total	56	100.00	147,138

* Taken from Agricultural Statistics 1969.

Nineteen, or 33.93 percent of County Agents serve an area between 1,000 to 1,999 square miles as can be seen from the data in Table 5. The second highest, 16, or 28.57 percent of the Agents serve an area between 2,000 to 2,999 square miles. While eight, or 14.29 percent serve an area 3,000 to 3,999 square miles.

The average area served by each County Extension Agent in Montana is 2,627 square miles which was calculated by dividing the total land area (147.14 square miles) by 56 counties.

Table 6. Number of farmers in area served.

N=34		
Number of farmers*	No.	Percent
1 - 999	4	11.77
200 - 399	10	29.40
400 - 599	6	17.66
600 - 799	5	14.70
800 - 999	5	14.70
1,000 - and over	<u>4</u>	<u>11.77</u>
Total	34	100.00

* Based on USDA definition of farmer.

The data in Table 6 indicate that the greatest number 10, or 29.40 percent of County Agents serve 200 to 399 farmers while 6, or 17.66 percent serve between 400 to 599 farmers.

The average number of farmers served by each Agent contacted in this study was 409, which was calculated by dividing the total number of farmers by 38 responding County Agents.

Table 7. Receptiveness of farmers to weed research information as reported by County Extension Agents.

N=38		
Agents reply	No.	Percent
Yes	34	89.48
No	<u>4</u>	<u>10.52</u>
Total	38	100.00

As the data in Table 7 reveal, 34, or 89.48 percent of the Agents indicate farmers are generally receptive to new weed control research findings.

Table 8. The most troublesome weeds reported by County Extension Agents.

N=40		
Common name of weeds	Scientific name	Frequency of response
Leafy spurge	Euphorbia esula	99
Canada thistle	Cirsium arvense	90
Field bindweed	Convolvulus arvensis	69
Russian knapweed	Centaurea repens	65
White top	Cardaria draba	36
Dalmation toadflax	Linaria dalmatica	29
Wild oats	Avena fatua	16
Spotted knapweed	Centaurea maculosa	15

Troublesome weeds reported appears in Table 8 in order of their severity of control as perceived by the local agents.

The most troublesome weeds reported by County Extension Agents were Leafy spurge, Canada thistle, followed by Field bindweed and Russian knapweed.

Table 9. Methods used by County Extension Agents in obtaining weed research information.

N=34		
Methods	No.	Percent
By personal effort	8	23.53
Through Experiment Stations	7	20.59
Through Extension Specialists	3	8.80
Combination all above	<u>16</u>	<u>47.08</u>
Total	34	100.00

Eight, or 23.53 percent of the Agents received their weed research findings through personal effort, 7, or 20.59 percent through the Experiment Stations, 3, or 8.80 percent through Extension Specialists, but 16, or 47.07 percent get their information by using a combination of these methods, as the data in Table 9 reveal.

Table 10. Years County Extension Agents have used demonstration.

N=38		
Years	No.	Percent
0 - 5	6	15.79
6 - 10	6	15.79
11 - 15	6	15.79
16 - 20	7	18.42
21 - and over	2	5.26
Do not use formal demonstration	<u>11</u>	<u>28.95</u>
Total	38	100.00

For determining the use of demonstration as an effective teaching method by County Extension Agents, the researcher posed a question regarding the number of years they have used demonstrations.

As the data in Table 10 show , there is a fairly even distribution in the number of years over which County Extension Agents report using the demonstration method. As can be noted, 7, or 18.42 percent of the Agents have used the demonstration method between 16 to 20 years.

Table 11. Location of demonstrations.

N=30		
Location	No.	Percent
Farmer's land	28	71.80
County's land	2	5.13
Farmer's and Federal land	2	5.13
Farmer's and State land	4	10.26
Farmer's and County land	1	2.56
Farmer's, Federal, and State land	1	2.56
Farmer's, Federal, State, and County land	<u>1</u>	<u>2.56</u>
Total	39*	100.00

* Nine reported demonstrating in more than one category.

Twenty eight, or 71.80 percent of the County Extension Agents locate their weed control demonstrations primarily on farmers land. To a lesser degree County, State and/or Federal lands were used as can be seen from the data in Table 11.

To determine the optimum size for a weed demonstration plot the researcher

posed a question regarding size to County Extension Agents.

Table 12. Size of demonstration in square feet.

N=25		
Range in square feet	No.	Percent
200 - 1,000	7	28
1,001 - 5,000	2	8
5,001 - 10,000	1	4
10,001 - 20,000	2	8
20,001 - 100,000	1	4
100,000 - and over	8	16
Various	8	32
Total	25	100

Seven, or 28 percent of County Agents set up weed control demonstrations between 200 and 1,000 square feet in size. Four, or 16 percent used demonstrations which were 100,001 square feet or over in size, as the data in Table 12 indicates. Eight, or 32 percent of Agents reported the size of demonstration plots used varied depending on the subject, weed infested area, and type of crop, etc.

Table 13. Type of demonstration used.

N=27		
Type	No.	Percent
Result demonstration	9	33.33
Method and result demonstrations	7	25.93
Result and single demonstrations	2	7.41
Result and team demonstrations	1	3.70
Combination all above	<u>8</u>	<u>29.63</u>
Total	27	100.00

There are two main kinds of demonstrations used, such as Method and Result which were discussed in Chapter II page 8. Demonstrations also can be divided in two groups based on the number of people involved; if one person is involved it is single, if more than one person it is a team.

As can be seen in Table 13, 9, or 33.33 percent of the Agents used the result demonstration. Seven, or 25.93 percent used the Method and Result demonstration. Eight, or 29.63 percent reported that they use a combination of demonstrations which were mentioned above.

Table 14. Time for setting up demonstrations.

N=28		
Time of demonstration	No.	Percent
After weeds appear	9	32.15
After weeds appear and before treatment	5	17.86
Before weeds appear	2	7.14
After chemical treatment	2	7.14
Before and after treatment	1	3.57
Before and after weeds appear	1	3.57
Before weeds appear and after treatment	1	3.57
Before weeds appear and before treatment	1	3.57
Combination all above	5	17.86
Various	<u>1</u>	<u>3.57</u>
Total	28	100.00

County Extension Agents set up their weed control demonstrations at various times as indicated by the data in Table 14.

Nine, or 32.15 percent set up their weed demonstrations after weeds appeared, 5, or 17.86 percent after weeds appeared but before chemical treatment, and the other 5, or 17.86 percent of them use a combination of all above mentioned times depending on the weed variety and type of chemical to be used.

Table 15. Dissemination of weed demonstration results.

N=30		
Location	No.	Percent
Conference room	4	13.33
Field	4	13.33
Other public places	1	3.34
Combination all above	17	56.67
Do not hold a meeting for demonstration	4	13.33
Total	30	100.00

The data in Table 15 indicate that 17, or 56.67 percent of the agents use conference rooms, fields, or other public places for disseminating weed demonstration results to the farmers in their area. Four, or 13.33 percent use conference rooms and/or fields exclusively, while 4, or 13.33 percent reported that they do not hold an educational meeting to disseminate demonstration results.

Table 16. Demonstration replicated.

N=30		
Replication number	No.	Percent
2	1	3.34
3	11	36.67
4	6	20.00
5 and over	2	6.66
Various	2	6.66
Do not replicate	8	26.67
Total	30	100.00

In order to lessen the error and get a reliable result it is helpful to replicate the demonstration. The field where the demonstration

was established may show differences which effect the results. Replication may also cause more farmers to see the demonstration because of it being located in different locations. The replications of less than three times may not give effective results yet to replicate more than four times can be expensive.

As the data in Table 16 indicate 11, or 36.67 percent of the Agents replicate their weed control demonstrations 3 times and 6, or 20 percent, 4 times. Only 8, or 26.67 percent of Agents reported they do not replicate their weed control work where, as in total 22, or 73.33 percent to Agents replicate their weed demonstration plots.

Table 17. Characteristics of demonstration.

Characteristics	Yes		No		Total	
	No.	%	No.	%	No.	%
Farmers educated prior to demonstration	28	90.3	3	9.7	32	100
Help needed on setting up demonstration	18	60.0	12	40.0	30	100
Carried out under farm condition	27	93.0	2	7.0	29	100
Practical method and technology used	27	96.4	1	3.6	28	100
Established signs to display the plot	17	54.8	14	45.2	31	100
A field day set up	19	63.3	11	36.7	30	100
Media used during field day	19	65.5	10	34.5	29	100
Farmers guided to better techniques	29	93.6	2	6.4	31	100
Farmers helped to find technical materials	34	100.0	--	--	34	100

The data in Table 17 resolve that all 34 Agents reporting felt that weed demonstration plots helped farmers to find new methods for controlling weeds. This may be true since 27, or 96.4 percent of the Agents used correct practical methods and technology. Twenty seven, or 93 percent of those reporting carried out demonstrations under farm conditions and guided farmers to find technical materials about weed control as indicated by 29, or 93.6 percent of the respondents. Twenty eight, or 90.3 percent indicated that they educated farmers prior to demonstrations and 18, or 60 percent reported needing help in setting up demonstrations. Seventeen, or 54.8

percent indicated they erected signs on demonstration plots while 14, or 45.2 did not and 19, or 63.3 percent indicated they set up a field day while 11, or 36.7 percent did not, and 19, or 65.5 percent used media during field day while 10, or 34.5 percent did not.

Table 18. Publications Agents distribute.

N-38			
Publications	No.	Percent	Frequency of response*
Extension booklets	5	13.16	35
Handouts	-	--	21
Posters	-	--	8
News letters	-	--	5
Some weed magazines	-	--	2
Combination all above	<u>33</u>	<u>86.84</u>	<u>-</u>
Total	38	100.00	65*

* A total of 38 but some reported in more than one category making the frequency 65.

To effectively disseminate an idea it is essential to use a number of kinds of teaching techniques. Distributing different types of publications is one method commonly used and is believed to be helpful in introducing a new idea to any given population.

The data in Table 18 indicate that 5, or 13.16 percent of the County Agents distribute only Extension booklets but a larger number, 33, or 86.84 percent distribute a combination of Extension booklets, handouts, posters and magazines about weeds. Within this combination Extension booklets and handouts were the most frequently distributed materials.

Table 19. Information source for Agents about demonstration.

N=40

Source	No.	Percent	Frequency of response*
Extension Specialists	15	37.5	28
Universities	5	12.5	9
Experiment Stations	2	5.0	5
Other Agents	2	5.0	12
Friends	-	--	1
Books	1	2.5	1
Personal experience	1	2.5	1
Combination all above	<u>14</u>	<u>35.0</u>	<u>-</u>
Total	40	100.0	57*

* A total of 40 reported some (17) in more than one category.

Agents reported learning about the use of demonstration techniques from various sources as seen from the data in Table 19.

Fifteen, or 37.5 percent learned from their Extension Specialists, 5, or 12.5 percent from staff at the University. Fourteen, or 35 percent learned about demonstrations utilizing all sources present. Within all sources Extension Specialists, other Agents and Universities appear frequently as can be seen in the third column above.

Most educators stress that a combination of teaching methods enhance the learning process of those with whom they work.

Table 20. Audio-visual equipment used.

N=30

Types of equipment	No.	Percent	Frequency of response*
Slides	6	20.00	28
Transparencies	2	6.67	20
Alive samples	1	3.33	3
Movies	-	--	6
Audio disc	-	--	1
Combination all above	<u>21</u>	<u>70.00</u>	<u>-</u>
Total	30	100.00	58*

The data in Table 20 indicate that of the 30 Agents reporting 21, or 70 percent used a combination of audio-visual equipment including slides, transparencies, movies and audio discs.

Slides were used more frequently in combination with other audio-visual equipment. Six, or 20 percent used slides exclusively while there were six types of equipment reported as being used.

Table 21. Media used in informing farmers about weed control demonstrations.
N=28

Media	No.	Percent
Newspaper and radio	8	28.57
Newspaper and news letters	2	7.14
Newspaper and television	1	3.57
Newspaper, radio and news letters	7	25.00
Combination all above	5	17.86
Office visits	1	3.57
Newspapers	3	3.57
News letters	<u>1</u>	<u>3.57</u>
Total	28	100.00

As the data in Table 21 indicate , 8, or 28.57 percent of Agents informed farmers about weed control demonstrations by announcing the place and time of the demonstrations, in the newspaper or on a radio program. Seven, or 25 percent used newspaper, newsletter and radio while 5, or 17.86 percent surveyed used a combination of the media.

Table 22. Financing costs involved in setting up weed control demonstrations.
N=30

Sources of financing	Frequency of response*	Percent
County Weed Districts	15	17.24
Farmers	5	5.75
Universities**	1	1.15
Chemical Companies	1	1.15
County Weed Districts and Universities	10	11.50
County Weed District and farmers	9	10.34
County Weed Districts and Chemical Companies	6	6.90
Farmers and Chemical Companies	2	2.30
Universities and Chemical Companies	2	2.30
Universities and farmers	1	1.15
County Weed Districts and State Governments	1	1.15
County Weed Districts, farmers and Universities	13	14.94
County Weed Districts, farmers and Chemical Companies	6	6.90
County Weed Districts, Universities and Chemical Companies	3	3.45
Universities, State and Federal Governments	1	1.15
Farmer, Weed District and State Governments	1	1.15
Combination all above	7	8.03
Borrow, gifts or other ways	3	3.45
Total	87	100.00

* A total of 30 reported, however, many reporting in more than one category.

** University, through Experiment Station or Extension Service.

Fifteen, or 17.24 percent of the weed control demonstrations were financed from County Weed District funds, followed by a combination of Weed District and University financed demonstrations. In some instances, farmers financed weed demonstration work. The most frequent combination was Weed District, farmer and University, as can be seen in Table 22.

Table 23. Persons performing work essential to weed control demonstrations.
N=30

Persons	No.	Percent
County Agent and weed crew	4	13.33
County Agent, farmer and Chemical Company	1	3.33
County Agent, farmer and Experiment Station	3	10.00
County Agent	1	3.33
County Agent, weed crew and Experiment Station	2	6.67
County Agent, weed crew, Experiment Station and farmer	2	6.67
County Agent and Experiment Station	3	10.00
Farmer and weed crew	2	6.67
Farmer and County Agent	3	10.00
Farmer, County Agent and weed crew	3	10.00
County Agent, weed crew, Chemical Company, farmer and Experiment Station combination	2	6.67
Weed crew	3	10.00
County Agent, Experiment Station and Chemical Company	1	3.33
Total	30	100.00

For establishing and conducting a weed control demonstration the essential work was performed by many different people as can be seen from the data in Table 23. There is no one specific source for this purpose. The County Agent, weed crews, people from Experiment Stations, and farmers seem to share the work essential somewhat equally in setting up demonstrations.

The person predominately involved as would be expected in any of the combinations was the County Extension Agent.

Table 24. Location of weed control demonstrations.
N=29

Place	Frequency of response*	Percent
Weed infested area	17	25.37
On farmers land	16	23.88
Accessible to public	15	22.39
Near a road	10	14.93
Varies	6	8.95
Field crops	3	4.48
Total*	67	100.00

* A total of 29 reported response, some reported in more than one category.

As a guide to persons wondering where to locate weed demonstration plots the following information was revealed by the researcher.

The data in Table 24 indicate that the County Extension Agents report locating their weed control demonstrations in weed infested areas on farmer's land, accessible to the public, and near a road.

Table 25. Information posted on the sign to display demonstration plots.
N=31

Information	Frequency of response*	Percent
M.S.U. Cooperative Extension Service	11	14.67
Farmers name	11	14.67
Purpose and type	13	17.33
Chemical used	14	18.67
Chemical rate	10	13.33
Application time	2	2.66
Weed controlled	14	18.67
Total	75	100.00

* A total of 31 reported, all reporting in more than one category.

Putting a sign on a demonstration plot equipped with necessary information is one added method of disseminating information about weed control. Information posted on the sign showed the chemical used and weed to be controlled, 14, or 18.67 percent, the purpose and type of demonstration, 13, or 17.33 percent who established the demonstration, the farmers or coop-

Table 26. How agents record their weed control demonstration results.
N=27

Way of recording	No.	Percent
Picture	3	11.11
Picture and slides	14	51.86
Slides	5	18.52
Picture, slides and printed results	1	3.70
Picture, slides, movie and printed results	1	3.70
Picture and printed results	1	3.70
Slides and printed results	2	7.41
Total	27	100.00

erators name, 11, or 14.67 percent, and rate of chemical used, 10, or 13.33 percent as can be seen from the data in Table 25.

Demonstration results can be used effectively even after the weed plot itself has grown into dormancy and has been discontinued. Results of weed control work should be recorded and used in as many different ways as possible.

Table 27. Media used during field day.

N=29

Invited people from	Frequency of response*	Percent
Farmers organizations	20	30.30
Chamber of Commerce	15	22.73
Radio or television stations	9	13.64
County Commissioner	6	9.09
Anyone who is interested	5	7.57
U.S.D.A. Agencies	3	4.54
Farm supplies dealers	3	4.54
Mayor's office	2	3.03
Depends on situation	2	3.03
Farmer's tour	1	1.52
Total	66	100.00

* A total of 29 reported and all reported in more than one category.

In recording the demonstration results, 14, or 51.86 percent of County Agents used color slides and pictures. Slides were used by 5, or 18.52 percent of Agents reporting while pictures were used by 3, or 11.11 percent.

Visually recording results facilitates during off season at meetings with farm groups.

The data in Table 27 indicate the degree to which Agents used media during field days to show better results of their weed demonstration plots. Twenty, or 30.30 percent invited people from farmer organizations, and 15, or 22.73 percent invited people from the Chamber of Commerce, while 9, or 13.64 percent worked with the people from radio or television stations.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the data presented, the following conclusions have been formulated by the researcher.

1. Montana County Extension Agents were the study respondents; all were male, a majority were 39 years of age or younger, sixty percent had Masters Degrees, forty-four percent had five or less years of Extension employment. Agents responding served an average of 409 farmers over an average area of 3,065 square miles.
2. County Extension Agents obtain weed research findings by a combination of personal efforts and through Experiment Stations, and Extension Specialists. They used a variety of sources, as Extension Specialists, the University, Experiment Stations, and other County Extension Agents to obtain information about conducting demonstrations. County Extension Agents reported using both result and method demonstrations alone, or in a combination, from 0 to 20 years and over half of the Agents suggested needing help in setting up demonstrations.
3. County Extension Agents in general felt that through their efforts in conducting demonstrations farmers were guided to better weed control techniques by carrying out the demonstrations under farm conditions, using practical technology, erecting display signs, arranging field days, and using media at field days.

4. Weeds reported to be most difficult to control in order of their severity were leafy spurge, Canada thistle, field bindweed, Russian knapweed, white top, dalmation toadflax, wild oats, and spotted knapweed.
5. Agents reported establishing weed control demonstration on cooperating farmer's land, adjacent to public roads, using varying size of plots. Three fourths replicated their demonstrations and one third of the Agents set up demonstrations after weeds appeared. Demonstrations were primarily financed by the County Weed Board, and work was performed by Agents and County weed crews.
6. Agents responded that the farmers were receptive to weed research findings.
7. Agents used a variety of dissemination techniques; placing a display sign with essential information at demonstration cities, distributing Extension bulletins and other printed materials, holding educational meetings and using a combination of audio-visual materials, and also mass media as newspapers, newsletters and radio were used. Results of demonstrations were recorded for posterity using pictures and slides.
8. Extension Specialists did not report using weed control demonstrations other than those used by County Extension Agents. The Specialists in all instances worked cooperatively through the County Extension Agents in establishing demonstrations.

Recommendations

The following recommendations for the use of demonstration techniques in disseminating weed control research results to farmers, are based on the researcher's finding during this study and knowledge gained from the related literature.

1. Experiment Stations and Extension Specialists should continue informing County Extension Agents about new weed research findings through attending Experiment Station field days, continued personal efforts, and attending in-service courses on weed control methods where possible.
2. To disseminate the weed control methods to farmers, all County Extension Agents should be encouraged to replicate demonstrations.
3. To increase the effectiveness of weed control dissemination all County Extension Agents should be encouraged to erect display signs on demonstration plots, arrange field days and trips for farmers and hold educational meetings using media to effectively disseminate research findings.
4. Extension Agents reported needing help in setting up demonstrations, thus, they should contact and encourage farmers to perform the essential work in conducting the demonstrations.
5. A practical up-to-date Extension Manual for the County Extension Agent on conducting demonstrations would be helpful.

APPENDIX

The purpose of this study is to define how County Extension Agents and Extension Specialists in Montana use the demonstration technique for extending weed research findings to farmers. In order to accomplish this objective, will you please respond to the questions enclosed by putting an X mark, circling the letter, or specifying.

1. Your age_____
2. Sex () Male () Female
3. Your title_____
4. Academic rank () B.S. () M.S. () Ph.D.
5. What is your area of specialization?
 - a. Ag Education
 - b. Ag Econ
 - c. Agronomy
 - d. Animal Science
 - e. General Ag
 - f. Soil
 - g. Irrigation
 - h. Other_____
6. How long have you been working at your present position (years) _____
7. Do you speak any language other than English? () Yes () No
8. Have you ever published any book or booklet? () Yes () No
9. If answer yes, subject of publication_____
10. Available where_____

11. How large an area in square miles do you service? (sq. miles) _____
12. How many commercial farmers are located in this area? (USDA definition) _____
13. Are the farmers generally receptive to new findings? () Yes () No
14. Problem weeds in your county, with common name (in order of importance)

a.	b.	c.
d.	e.	f.

15. What are the noxious weeds in your County?

- | | | |
|----|----|----|
| a. | b. | c. |
| d. | e. | f. |

16. Which of the weeds in your County are most difficult to control?

- | | | |
|----|----|----|
| a. | b. | c. |
| d. | e. | f. |

17. How do you receive new findings about weed research?

- | | |
|--------------------------------|----------------------------------|
| a. By personal effort | c. Through Extension Specialists |
| b. Through Experiment Stations | d. Combination of all |

PART III

18. How many years have you been using weed control demonstration techniques?

- | | |
|----------|----------------------|
| a. _____ | b. _____ I don't use |
|----------|----------------------|

19. Where do you set up demonstrations?

- | | | |
|---------------------|-------------------|----------------|
| a. On farmer's land | c. On State land | e. Combination |
| b. On Federal land | d. On County land | f. Other _____ |

20. What size of demonstration plot do you use?

- | | |
|------------------|------------------------|
| a. acre _____ or | b. _____ X width _____ |
|------------------|------------------------|

21. What type of demonstration technique do you use?

- | | | |
|-------------------------|-------------------------|-------------------------------|
| a. Method demonstration | c. Single demonstration | e. Combination of () and () |
| b. Result demonstration | d. Team demonstration | f. Combination of all above |

22. When do you establish the demonstration?

- | | |
|------------------------|------------------------------|
| a. Before weeds appear | c. Before chemical treatment |
| b. After weeds appear | d. After chemical treatment |

23. Are the demonstration replicated? Yes _____ No _____

24. If answer yes for question 23 how many times? _____

25. Do you need any help while you are establishing demonstration? _____ Yes _____ No

26. Do you have a field day about demonstrations? _____ Yes _____ No

27. Do you hold an educational meeting about results of weed demonstrations?

_____ Yes _____ No

28. If answer yes for question 27, where?
- a. In a conference room
 - b. In the field
 - c. Public meetings
 - d. Other _____
29. Do you help the farmers to find new material about weed control methods?
- _____ Yes _____ No
30. Do you guide the farmers to find things that are used in the demonstrations?
- _____ Yes _____ No
31. Do you set up the demonstrations under farm conditions? _____ Yes _____ No
32. Where do you learn how to use the demonstration technique as an educational method?
- a. From Extension Specialists
 - b. From Experiment Station
 - c. From experience in fields
 - d. Other _____
 - e. From University
 - f. By reading books
34. Who taught you how to use the demonstration technique?
- a. Teacher
 - b. Friend
 - c. Research Specialist
 - d. Other Agent
 - e. Other _____
 - f. Don't know how to use it
35. Do you educate the farmers about weed control prior to demonstrations?
- _____ Yes _____ No
36. What kind of publication do you distribute?
- a. Handouts
 - b. Posters
 - c. Extension booklets
 - d. News letters
 - e. Some magazines
 - f. Other _____
37. Do you use some audio visual equipment at public weed control meetings?
- a. Slides
 - b. Movies
 - c. Transparencies
 - d. Audio discs
 - e. Records
 - f. Tapes
 - g. Other _____
38. Do you give information announcing place and time of demonstrations on the..?
- a. News papers
 - b. News letters
 - c. Radio
 - d. Television
 - e. Office visits
 - f. Other _____
39. What is the resource base for financing weed control demonstrations?
- a. Farmers
 - b. University
 - c. Research Station
 - d. State
 - e. Federal
 - f. Chemical company
 - g. County
 - h. Combination

40. What is the resources for purchasing chemicals used for the demonstrations?
- | | | | |
|---------------------|------------|----------------------|----------------|
| a. County | c. State | e. Chemical company | g. Combination |
| b. Research Station | d. Farmers | f. Extension Service | h. Other _____ |
41. How is applicator equipment acquired that is used for conducting the demonstrations?
- | | | | |
|----------------------|--------------|-----------------------|----------------|
| a. County | c. Farmers | e. Experiment Station | g. Combination |
| b. Extension Service | d. Borrowing | f. Chemical company | h. Other _____ |
42. Who actually works on putting on the demonstration?
- | | | |
|-----------------------------|---------------------|------------------------------|
| a. Extension Agent | c. Farmers | e. Experiment Station people |
| b. County weed control crew | d. Chemical company | f. Other _____ |
43. What location do you use in setting up a demonstration?
- | | | |
|------------------|-------------------------|----------------|
| a. Farmers land | d. Crop land | g. Various |
| b. Near the road | e. Waste land | h. Range land |
| c. Weed infested | f. Accessable to public | i. Other _____ |
44. Do you put a sign by the demonstration plots? ____ Yes ____ No
45. If answer yes, what type of information do you put on the sign?
- | | | |
|----------------------------------|-------------------|------------------|
| a. Cooperative Extension Service | d. Weeds name | g. Farmer's name |
| b. County Weed Controlplot | e. Crops name | h. Time |
| c. Purpose of demonstration | f. Chemicals name | i. Rate |
| | | j. Other _____ |
46. Do you record the result of demonstration by using ..?
- | | | |
|------------|---------------------|----------------|
| a. Picture | c. Movies | e. Other _____ |
| b. Slides | d. Printed material | |
47. If you conduct a field day do you invite the local news media? ____ Yes ____ No
48. Do you also invite the people from..?
- | | | |
|---------------------------|------------------------------|-------------------|
| a. Farmers' organizations | e. Farm supplies dealers | i. County |
| b. Radio or T.V. stations | f. Public who are interested | Commissioner |
| c. Chamber of Commerce | g. USDA Agencies | j. Mayor's office |
| d. Research Stations | h. Various | k. Universities |
| | | l. Other _____ |



DEPARTMENT OF AGRICULTURAL & INDUSTRIAL EDUCATION

COLLEGE OF AGRICULTURE

MONTANA STATE UNIVERSITY, BOZEMAN 59715

June 20, 1975

I am conducting a study of attitudes toward Agricultural Education using a random sample of County Extension Agents and Extension Specialists. I am looking at the use of demonstration for extending weed research findings.

No names or other identifying characteristics you provide will be revealed.

A pre-addressed and stamped envelope has been included in this letter for the return of the questionnaire.

I would greatly appreciate your time filling out this questionnaire. It should take about 30 minutes.

Please return this questionnaire by July 7th. The result of the study will be sent to you if you so desire.

Thank you.

Sincerely,

A handwritten signature in cursive script, appearing to read "Orhan Vedat Cursoy".

Orhan Vedat Cursoy
M.S.U. Ag Ed Department
Graduate Student

OVG/lg





DEPARTMENT OF AGRICULTURAL & INDUSTRIAL EDUCATION

COLLEGE OF AGRICULTURE

MONTANA STATE UNIVERSITY, BOZEMAN 59715

July 24, 1975

On June 20, 1975, I sent the enclosed questionnaire to you for a study which I am conducting of attitudes toward Agricultural Education using a random sample of County Extension Agents and Extension Specialists.

I have not received an answer from you to date, and would greatly appreciate your filling out the questionnaire and returning it to me in the self-addressed, stamped envelope by August 10. Your answers will be kept confidential; however, if you will make a notation of your name, I will then be able to cross it off my list.

If you have already sent this questionnaire, please disregard this letter. If you wish to receive results of the study, please indicate this on your questionnaire and they will be sent to you.

Thank you.

Sincerely,

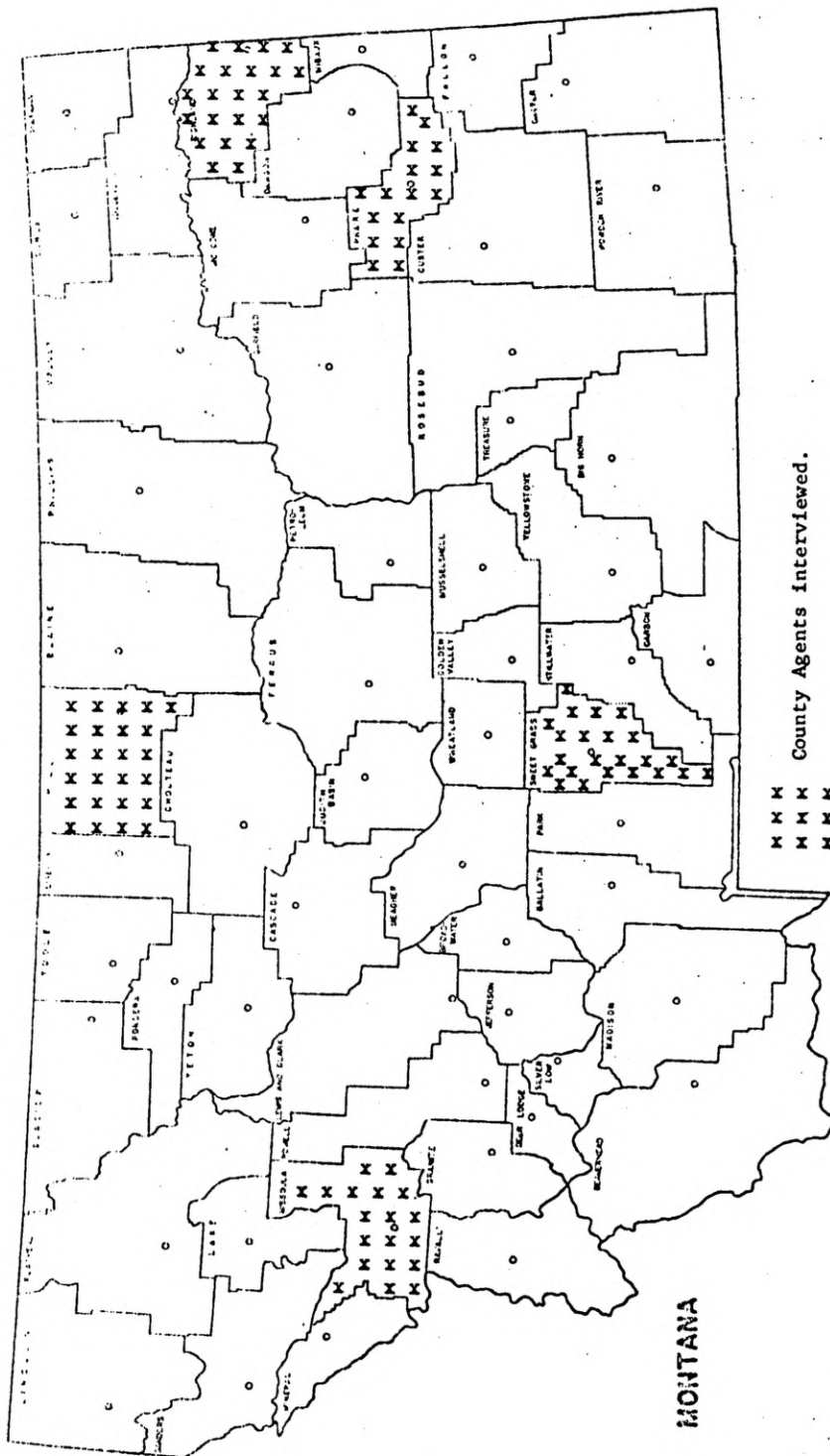
A handwritten signature in cursive script, appearing to read "Orhan Vedat Gursoc".

Mr. Orhan Vedat Gursoc
Agricultural & Industrial Education Dept.
Graduate Student

OVG/gc



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