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THE FARMER, ABSENTEE LANDOWNERS AND EROSION: FACTORS INFLUENCING THE USE OF CONTROL PRACTICES

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ABSTRACT

This study analyzes the attitudes and behavior of farmers and absentee landowners in the Palouse area of Washington and Idaho to help illuminate the reasons for adoption or failure to adopt control practices. Three hundred and six farm operators and 206 absentee landowners were studied.

More than half of all farmers use seven of nine potentially helpful practices. However, they are more likely to use those practices that are least costly and troublesome to adopt rather than those known to be most effective. Farmers believe they are doing more to control erosion than self-reported behavior indicates. Greater use of erosion control measures tends to be positively associated with larger farm sizes, higher gross incomes, and higher educational levels.

Absentee landownership is an important part of Palouse farming; the average farmer leases 55 percent of the land he farms. Yet there is little interaction between absentee owners and their farm operators. Both owners and operators are strongly concerned about erosion control; however, farmers perceive absentee owners as more resistant to erosion controls than owners perceive themselves. Adequate erosion control in the Palouse must involve both the farm operator and the absentee landowners.

INTRODUCTION

Increasing national concern with resource shortages, particularly related to food production, is likely to further emphasize the preservation of prime agricultural land (Brink, Densmore, and Hill, 1977). This can take the form of restricting the conversion of good land to non-agricultural uses, or it can take the form of preserving the quality of existing land. Furthermore, environmental concern has led to increased pressure on agriculturalists to avoid pollution of streams through run-off soil or chemicals. The Federal Water Pollution Control Act (particularly the amendments of 1972) mandates the eventual control of non-point sources of pollution such as surface run-off leading to soil erosion and stream sedimentation.

The Palouse area of Washington and Idaho contains some of the most highly productive agricultural land in the Northwest. However, the fertile rolling hills and relatively heavy precipitation (14 to 26 inches annually) make the land highly subject to erosion and chemical or sediment run-off.

Farmers and absentee landowners will be held increasingly responsible for soil maintenance and avoidance of pollution. It is possible that additional forms of incentives will be initiated soon, in the form of outright regulations demanding compliance, or positive rewards for improvement of farming practices to achieve the desired results.

The reward mechanism has been widely used to increase use of selected soil conservation practices. At least part of the cost for such improvements is usually born by the federal government. However, a high proportion of apparently desirable practices are not presently subject to such formal rewards. Adoption of these improved alternatives is left to the discretion of farm operators or owners--and incidence of use varies widely. It is

clear that many useful practices are not perceived as sufficiently worthwhile to merit adoption by a substantial proportion of farmers. Furthermore, the knowledge about how to adequately control erosion and chemical or sediment run-off is not fully complete.

Consequently, the alternatives for increasing erosion control remain uncertain--and the rich soils continue to be lost in large volume, while polluting streams and rivers. The data reported here are intended to increase understanding of the problems and possibilities for dealing with the set of issues involved in erosion control and pollution abatement. The study attempts to increase understanding of how and why the farmer and absentee landowners, who have primary responsibility for the land, respond or fail to respond to what is currently known about erosion control. We want to know what reasons are offered for using or failing to use practices that could make a difference. Furthermore, we are interested in how the owners and operators perceive the problem and the appropriate mechanisms for dealing with the issues. Finally, we are in search of positive recommendations that can help owners, operators, agency professionals and educators be more effective in applying available knowledge and technology to the resolution of erosion control and pollution abatement.

The objectives of the project include:

1. Examination of farmers' general values regarding acceptance or rejection of new ideas and techniques, with special emphasis on erosion control measures.
2. Analysis of socio-economic characteristics of farmers, particularly as they relate to the acceptance and rejection of new technology.

3. Measurement of present utilization of erosion control techniques by farmers as well as perceived benefits and costs related to farm operation.
4. Study of absentee landowner values related to accepting or rejecting new techniques, with special emphasis on erosion control.
5. Analysis of the degree and impact of influence from absentee owners on the farming operation.
6. Development of recommendations for increasing acceptance of erosion control and pollution abatement techniques.

RESEARCH PROCEDURES

The data were collected from farm operators and absentee owners of farmland in the Palouse area of Whitman County, Washington and Latah County, Idaho. A list of all Latah and Whitman County farm operators was obtained from the Agricultural Stabilization and Conservation Service offices of each county. These lists were then compared with the local tax records to secure and code farm size and location. All farms under 80 acres were eliminated from the sample under the assumption that such units were unlikely to be economically feasible as a conventional farm operation. The boundaries for the study area were determined in cooperation with Agricultural Stabilization and Conservation Service personnel.

Data collection was completed during 1976 and 1977. Sampling was without replacement; that is, the original sample was reduced by deceased, retired, vacationing or unwilling farmers and landowners. The 306 completed farmer interviews represent a response rate of 92 percent.

Names of absentee landowners were obtained from the tax records of Latah and Whitman counties. Names of landowners who owned land in one county and lived in the other study county were eliminated, so that all members of the sample live outside the two counties. Three hundred eighty-four (384) landowners received a mailed questionnaire; a followup postcard, a second questionnaire and several followup phone calls were used to encourage response from those who did not immediately return questionnaires. Again, sampling was without replacement, reducing the sample substantially; some farms are held in estate by Banks, or landowners were deceased, and we were unable to locate other sample members. The 206 completed interviews represent a response rate of 65 percent.

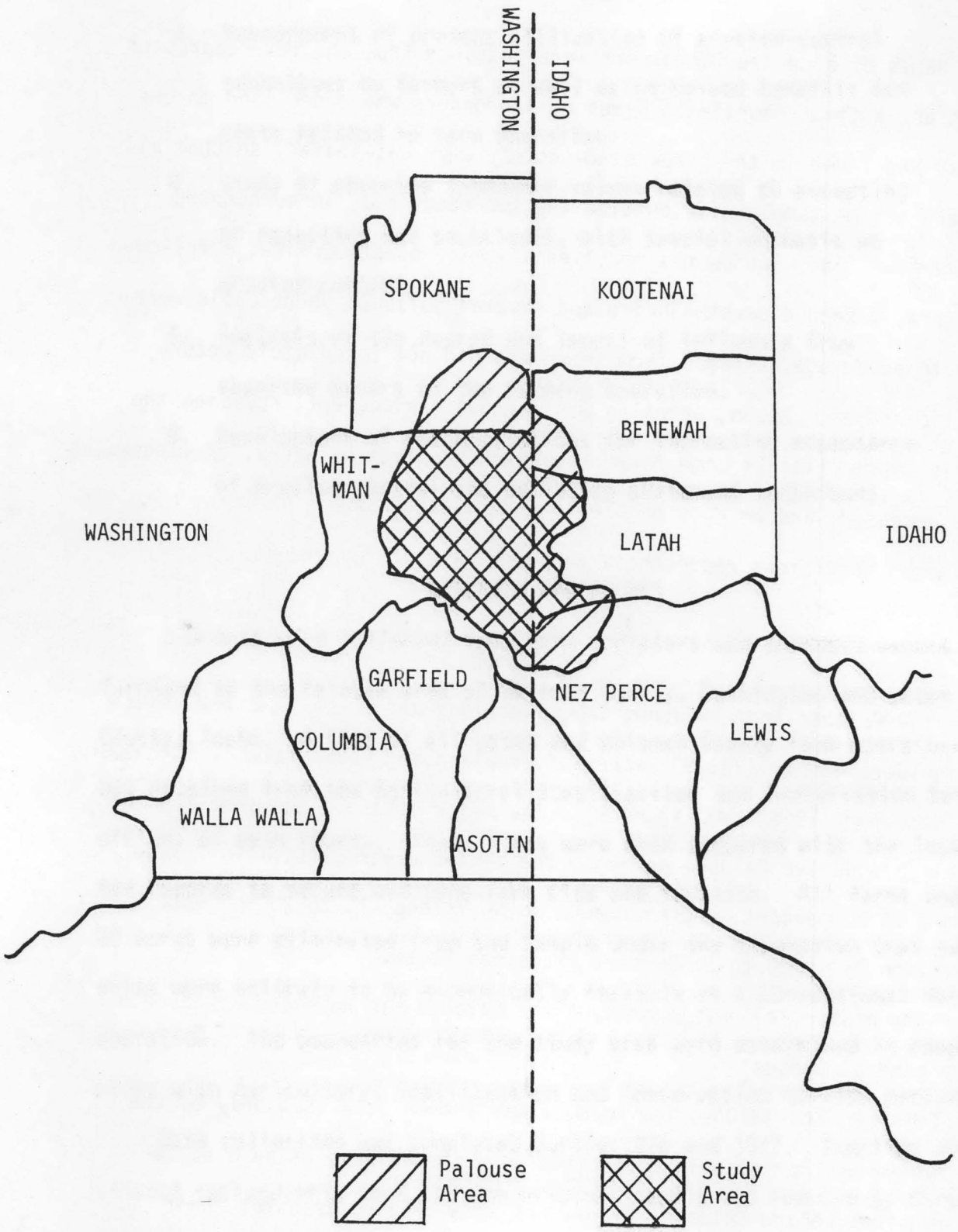
THE STUDY AREA

The Palouse area is about 130 miles long and 15 to 25 miles wide; it includes about 1,323,000 acres of cropland and 3,837 farmers (Michelson and Noteboom, 1966; see Figure 1). The major soils in the area are the highly productive Palouse series. The slopes under cultivation range from 0 to 50 percent, and average a rather steep 15 to 20 percent. Elevation is 1,500 to 2,500 feet above sea level.

The historical development of the Palouse can be categorized into five general phases:

1. Prior to the 1870's, the Palouse was Indian land used only by the white man for trapping. Indians used the Palouse as an area for hunting upland animals, birds, and as a grazing area for their horses. They also used the Palouse for the production of some edible plants, the most notable being the Camas (Quasmasa quamosia). The area was undergoing "soil-building" from accumulation of annual plant growth over a long period of time, resulting in high organic

Figure 1: Palouse Area



soils containing large moisture-storing capabilities, abundant plant food nutrients, and resistance to erosion.

2. The 1870's and early 1880's was the period of white settlement and livestock raising with minimal erosion, but some overgrazing. Some perennial grasses were replaced by annual species.
3. During the late 1880's and early 1900's most of the farmland in the Palouse was settled by homesteading, pre-emptions, timber claim, or purchase of railroad land. Serious soil erosion was underway.
4. 1910 to the middle 1930's included four important events which had major impact on the soil resources of the Palouse: (a) Considerable summer fallow was practiced in spite of recommendations that this was not a suitable procedure in high rainfall areas. (b) The introduction of dry peas. Even though peas provided for annual cropping to replace summer fallow on many farms, they also required more intensive cultivation and burning of crop residues, leading to many kinds of annual weeds that had not been a serious problem previously. (c) The introduction of the combine harvester. Because straw spreaders were not introduced into the Palouse until the early 1930's, the straw was usually bunched and burned in the fields. (d) The introduction of tractors. The new powered machinery brought frequent intensive cultivation with heavy equipment; as a result, erosion increased.
5. During the 1930's through World War II, erosion increased at an alarming rate. All of the original topsoil had been lost from about 10 percent of the rich cropland. However, grassed waterway, windbreaks, foreage legumes and grasses planted in rotation with

grain and peas, and the installation of straw spreaders on combines were initiated on many farms which helped to control part of the erosion.

During the 21-year period from 1940 to 1961, there was an estimated average loss per year of 8.8 million tons of Palouse topsoil (Kaiser, 1961).

Erosion rates vary with climate, soil, and topography, as well as land management. Langbein and Schumm (1958) found that erosion rates in the United States are high when the annual precipitation is between 10 to 14 inches; the Palouse area has an annual rainfall of between 14 to 26 inches. Erosion is obviously further aggravated by the steepness of the slopes.

Tillage practices have major influence on erodibility of soil. Erosion arising from inappropriate tillage moves large amounts of soil and is particularly severe on steep slopes. Damage to the land, and erosion caused siltation and sedimentation, remain prevalent despite conservation efforts by concerned farmers and local, state, or federal agencies. Since soil loss record keeping was initiated in 1930-40, Whitman County, Washington has lost an estimate 357.11 million tons of topsoil to 1975 and is one of the two most critical erosion areas in the United States (Kaiser, 1967).

RESULTS

Palouse Area Farms

The average size of farm unit is approximately 1020 acres. Farmers indicate that approximately 300 of these acres are owned outright (29%),

another 165 acres are in the process of purchase (16%), and 565 acres are leased (55%). The rather high proportion of leased land was an unexpected finding and has clear implications for control of erosion--some elements of which are discussed later in this report.

Definition and Use of Practices

The study focused on nine practices identified by soil scientists and professional agriculturalists as having major potential for erosion, sedimentation and erosion control.

Seeding on Contour: Refers to drilling around the hills. The horizontal furrow tends to hold moisture better than a downhill furrow.

Crop Residue Mulching: Involves mulching and spreading of harvesting residues to provide organic matter on the soil surface. Soil cover reduces erosion potential.

Chisel Plow: The use of the chisel plow results in a very rough soil surface containing high organic matter content, reducing likelihood of erosion when compared to turning of the soil with the moldboard plow which places organic matter beneath the soil surface.

Throwing Furrow Uphill: The furrow thrown by the moldboard plow goes up the hill rather than down the hill. This practice tends to retard the otherwise inevitable movement of soil from the tops of the hills toward the bottom.

Seed Critical Areas: Refers to growing grass or a legume on areas that are particularly prone to erosion such as water courses and particularly steep areas.

Minimum Tillage: The practice of seeding into soil that has been minimally worked.

No Summer Fallow: Continuous cropping rather than working the soil and allowing it to remain unplanted for a crop season.

Divided Slope Farming: Breaking up long slopes by dividing them through tillage practice and/or planting different crops on alternative segments of the slope.

No Till Farming: Involves seeding directly into the stubble of the previous crop.

Seven of the nine practices are used by at least half of the farmers (Table 1); more than three-fourths use crop residue mulching or are seeding on the contour.

The practice with the greatest potential for effective erosion control and the most difficult to implement--no tillage--is the least used; only three percent reported current use. However, the practice appears to be a topic of conversation. The majority of farmers indicate interest in no tillage and only one percent had not heard about its potential. One-fifth of the non-using farmers indicate an interest in minimum tillage--already in use by one-half of the farmers.

With the exception of two practices, fewer than 10 percent of the farmers indicate they have discontinued an adopted practice. Eleven percent initiated, then later discontinued divided slope farming; 14 percent have discontinued seeding critical areas.

Table 1

THE USE OF EROSION CONTROL PRACTICES*

	Now Using
	%
Seeding on the Contour	86
Crop Residue Mulching	78
Chisel Plow	67
Furrow Up Hill	65
Seeding Critical Areas	60
No Summer Fallow	59
Minimum Tillage	54
Divided Slope	23
No Till	3

*N = 306

COMPREHENSIVENESS OF EROSION CONTROL

An issue of considerably interest is the degree to which farmers who use **one** practice tend also to have adopted other control measures. Do farmers adopt practices haphazardly or as part of a comprehensive effort to control erosion? Or do they tend to substitute practices, thus achieving partial erosion control? Or do they use practices in complementary fashion to build a total soil erosion control program?

To suggest answers to these questions, we interrelated use of each practice with the "gamma" statistic. The potential values range from -1.0 to +1.0. A gamma near zero indicates that the use of one practice does not increase our ability to predict use of another practice. A positive number approaching 1.0 indicates farmers who use one practice are extremely likely to use the associated practice.

Gammas for each of the 36 possible comparisons are reported in Table 2. Farmers who use one practice are significantly more likely (than non-users) to use most other practices, with certain exceptions. "No summer fallow" correlated minimally with several other practices, particularly seeding on the contour, use of the chisel plow, or crop mulching. The second exception is no tillage; low or negative correlations with other techniques can perhaps be explained as a statistical artifact resulting from the very small number (10) of users.

Two groups of practice users appear to emerge from the intercorrelations. One group tends to collectively use divided slope farming, seeding critical areas, seeding on the contour, throwing furrow uphill, and crop mulching as a means of controlling erosion. A common dimension of all these practices is the minimal capital investment required to adopt them. They can be implemented by changing tillage practices rather than changing the type of equipment.

A high correlation occurs between minimal till and no till. Financial investment is required to implement these erosion control practices, obviously a significant constraint on adoption.

Effective erosion control can probably not be equated with adoption of all nine practices. Certain measures may not be applicable to all farming operations. Yet, use of several controls suggests a more comprehensive erosion control effort. An erosion control score was therefore calculated for each farmer. One point was allocated for each of eight practices (summer fallow was eliminated because of minimal relationships to other adoptions) allowing a maximum score of "8" and a minimum score of "0". Erosion control scores offer an alternative perspective on comprehensive erosion control.

Table 2

DOES THE USER OF ONE EROSION CONTROL PRACTICE TEND TO USE ANOTHER

	No Summer Fallow	Critical Areas	Minimum Till	No Till	Seed on Contour	Chisel Plow	Uphill Furrow	Crop Mulch
Divided Slope	0.07	.60	.38	-.11	.63	.28	.58	.51
No Summer Fallow		.18	-.24	-.73	-.04	-.02	-.11	.00
Seed Critical Areas			.25	.00	.42	.27	.33	.16
Minimum Till				.78	.20	.31	.34	.52
No Till					-.25	-.15	.36	.43
Seed on Contour						.44	.45	.50
Chisel Plow							.32	.40
Uphill Furrow								.29

PERCEIVED EROSION CONTROL AND ACTUAL BEHAVIOR

The relationship between perceptions farmers hold about the adequacy of erosion control and the actual use of erosion control practices is revealing. As indicated in Table 3, those using few practices tend to perceive themselves as doing all they can to control erosion almost as

much as those using most of the practices. Seventy-nine percent of those using few erosion control practices (compared to 88 percent of those using the most erosion control practices) feel they are doing everything possible to control erosion. These inaccurate perceptions among minimal adopters suggest low awareness of practices available (or several practices may not be applicable to the farm operation).

Table 3

EROSION CONTROL SCORES AND
SELF-PERCEIVED COMPREHENSIVENESS OF EFFORT

I Am Doing Everything I Can To Control Erosion:	Number of Practices Used*		
	Few	More	Most
	%	%	%
Agree or Strongly Agree	79	85	88
No Opinion	12	4	1
Disagree or Strongly Disagree	9	10	11
	100	100	100

*Category definitions are: Few, 0-2 practices; More, 3-5 practices; Most, 6-8 practices.

Relationships between use of a practice and its perceived effectiveness in controlling erosion are demonstrated in Table 4. There is obviously a much higher incidence of perceived effectiveness than current use of practices except for "seeding on the contour." In general, those who are using a practice are more likely to view it as very effective in controlling soil erosion than those who are not using it or have used it before but not now.

Table 4

USE OF PRACTICE AND PERCEIVED
EFFECTIVENESS IN CONTROLLING EROSION

	Current Use	Perceived by Farmers as "Somewhat" or "Very" Effective
	%	%
Seed on Contour	86	83
Crop Residue Mulching	78	91
Fall Chiseling	67	94
Furrow Up Hill	65	NA*
Seed Critical Areas	60	90
Eliminate Summer Fallow	59	84
Minimum Tillage	54	94
Divided Slope	24	92
No Till	3	78

*NA = Non-applicable. Farmers were not asked about effectiveness of this practice.

Gross income, educational achievement, and acres farmed are rather significantly related to the use of erosion control practices--as indicated by statistical (gamma) association with the constructed erosion control score (see Table 5). Age and acres owned (usually less than acres farmed, because of the high incidence of leasing in the Palouse area) are less related; the younger farmers tend to be somewhat higher adopters of erosion controls but examination of the data indicates that influence of the age factor is countered by "income" and "size of farm" variables--which tend to associate negatively with age.

The significant associations of erosion control with acres farmed and gross income clearly suggests that financial ability is a major factor in environmental preservation, just as it tends to be in adoption of productivity or profit oriented farm practices (Pampel and van Es, 1977). Since the more advanced erosion control measures require rather major investments in equipment and more complex farm management practices this

is hardly surprising. Education should contribute to management competence, as the positive association with use of erosion controls indicates.

Table 5

ASSOCIATIONS AMONG FARMER CHARACTERISTICS AND USE OF EROSION CONTROL PRACTICES

Variable	Association Coefficient*
Age	-.09
Years in Farming	.01
Education	.26
Acres Owned	.11
Acres Farmed	.40
Gross Income	.23

*Gamma

The independent effects of each of these farm or farmer characteristics were further analyzed through multiple regression, an analytical method which measures the influence of several variables on the erosion control score. Results are displayed in Table 6.

Table 6

INFLUENCES OF FARMERS AND FARM CHARACTERISTICS ON USE OF EROSION CONTROL PRACTICES*

	Proportion of Variation in Adoption Score Accounted For
	%
Age	0
Years in Farming	0
Education	3
Acres Owned	0
Acres Farmed	6
Gross Income	1
Number of Landlords	1

*Based upon Multiple-Regression Analysis. Only 265 farmers in the sample provided complete data on each of the variables involved, limiting the regression to this number of cases.

These results suggest that age, years in farming, and acres owned have essentially no influence on adoption of erosion control practices when each of the factors are taken into consideration. Total acres farmed and years of education have modest influence, while gross income and number of landlords are minor factors. The major conclusion to be drawn from these results: Characteristics of the farm and farmer alone are not the important predictors of adoption; other factors affect decisions to a larger degree. Attitudes, values, knowledge about the value of the practices, landowner influence or other such factors may be more significant than farmer or farm characteristics.

Farmer Reactions to Government Involvement

Presumably, if the requirements of Federal water pollution laws are not met, some form of government intervention may be imposed as a means of more directly encouraging or forcing erosion, sedimentation and pollution control. The likely effectiveness of government actions will depend heavily on the kinds of measures the farmer deems acceptable and appropriate. We asked farmers several questions regarding the role of government.

Although farmers clearly prefer less government involvement in agriculture (76%), they do recognize a definite role in selected areas of activity (Table 7). For example there is considerable agreement that government should provide long-term financial incentives for improved farming practices (59%). Government should actively promote export of farm products (54%), support agricultural prices (54%), and particularly should discourage large-scale corporate farming (79%). However, farmers are strongly opposed to government imposition of limits on acceptable

soil erosion (71%) or limitations on crop production (80%). Furthermore, if there is to be any kind of government involvement in decisions about land use, the county as the unit of responsibility (81%) is strongly preferred over state (7%) or federal (3%) units.

Table 7

FARMER PREFERENCES FOR GOVERNMENT INVOLVEMENT

	Government Should Be Involved	
		%
Preference for Government Involvement in Agriculture:	More Involved	2
	Same	22
	Less Involved	76
Actively Promote Exports		53.5
Provide Long-Term Financial Incentive		59.2
Should Not Limit Production of Crops		80.0
Should Not Set Limits on Acceptable Soil Erosion		71.0
Support Agricultural Prices		53.6
Discourage Large-Scale Corporate Farming		79.0
Preferred Government Level For Land Use Decisions:	Federal	3
	State	7
	County	81
	City or Municipality	0
	Other	9

Farmers obviously have very strong feelings about the appropriate role of government generally, and particularly with regard to control of soil erosion. Their preference is for a system of long-term incentives supported by the government rather than imposition of regulations which arbitrarily (they feel) limit their freedom of decision and action.

Sources of Information and Encouragement About Erosion Control

Farmers give the U.S. Soil Conservation Service and farm magazines the major credit as sources of assistance (Table 8). The Cooperative Extension Service and Agricultural Experiment Stations of Land Grant Universities are also credited with significant influence. Radio, television, neighbors, friends and private agricultural consultants or salesmen are each given considerable credit. These results suggest that farmers pay attention to educational and service units of government, and are affected by the mass media to considerable degree. There is an apparent openness to new information from a variety of legitimate sources, if those sources can provide convincing evidence with regard to actions that the farmer (or his landowner, if he leases) can afford.

Table 8

MAJOR SOURCES OF ENCOURAGEMENT
FOR EROSION CONTROL

	Occasional or Frequent
	%
Soil Conservation Service	84
Farm Magazines	80
Cooperative Extension Service	63
Agricultural Research Centers	56
Radio and Television	54
Neighbors and Friends	31
Private Agricultural Consultants	14

FARMER AND ABSENTEE LANDOWNER COMPARISONS

There is a tendency for absentee landowners to not answer many of the rather specific questions on erosion control or technical aspects of the farming operation. In all likelihood this is a function of the high

degree of female ownership (57%) and lack of direct involvement in farming (71%). Roughly one-third of the absentee owners fail to answer most of the technical questions (Table 9 displays selected information about farmers and landowners).

Table 9

BACKGROUND CHARACTERISTICS OF PALOUSE FARMERS AND ABSENTEE LANDOWNERS

	Farmers	Landowners
	(Averages)	
Age	51 years	63 years
College Graduates	13%	50%
Years in Farming	26	---
Acres Farmed	1020	---
Proportion of Income From Farming	Not Determined	32%
Sex: Male	100%	43%
Female	---	57%

Nonetheless those absentee landowners who do respond demonstrate some rather clear variations from farm operators in evaluating the factors associated with erosion control. For example, landowner resistance to erosion control measures is perceived as much more significant by the farmers than by the owners; 38% of the farm operators consider such resistance important, while only 19% of the absentee owners fall into the same category (see Figure 2, item 7). Altogether, 58% of the farmers feel that landlords have some influence on erosion control efforts, while only 39% of the landlords agree. This suggests rather clearly that farmers perceive themselves as limited in their ability to act because of restrictions placed upon them by absentee landowners, while absentee owners do not consider their influence particularly restrictive. However, this conclusion must be considered in context with the nature of the sample of

Figure 2

IMPORTANT REASONS FOR NOT CONTROLLING EROSION

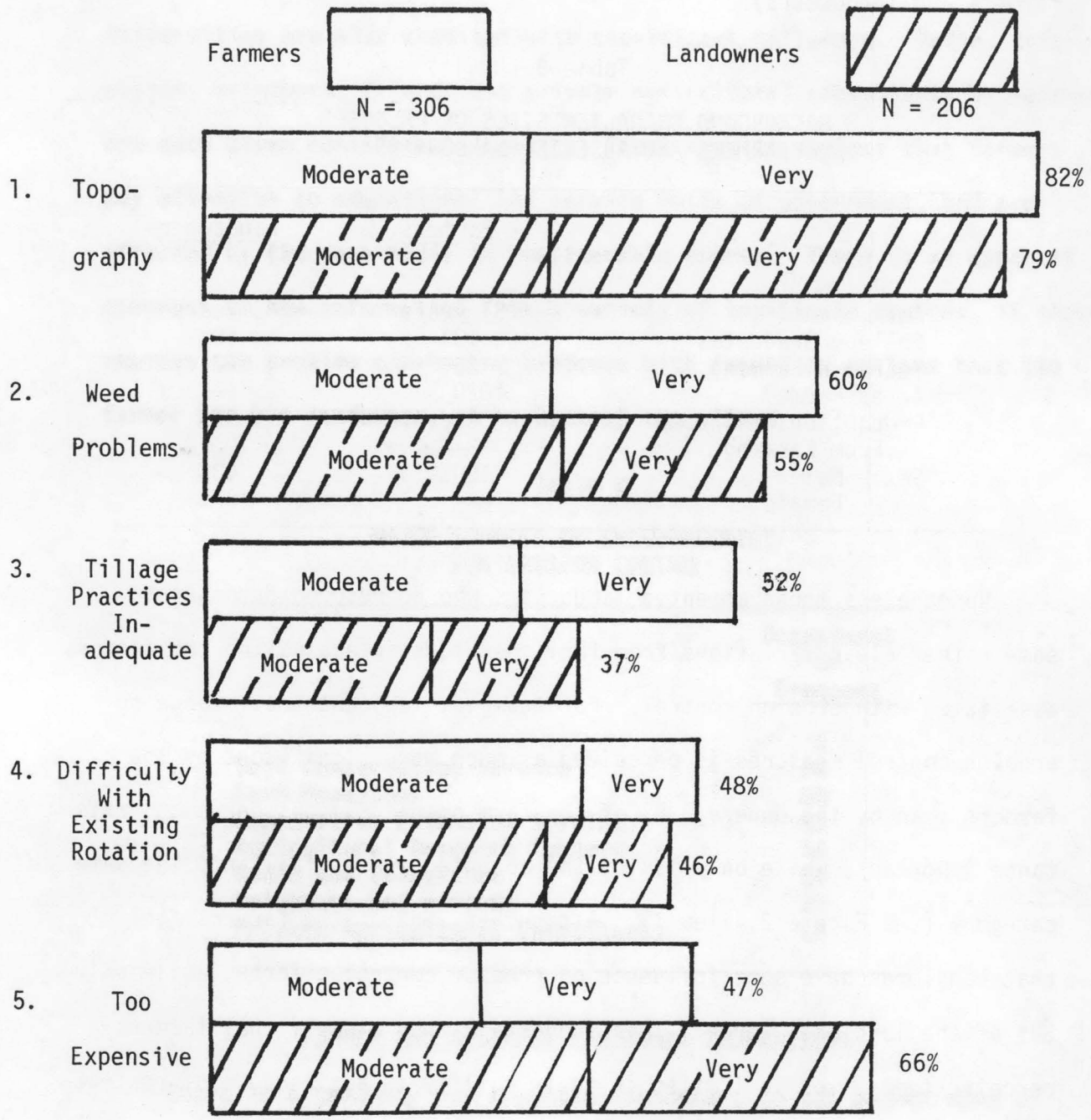
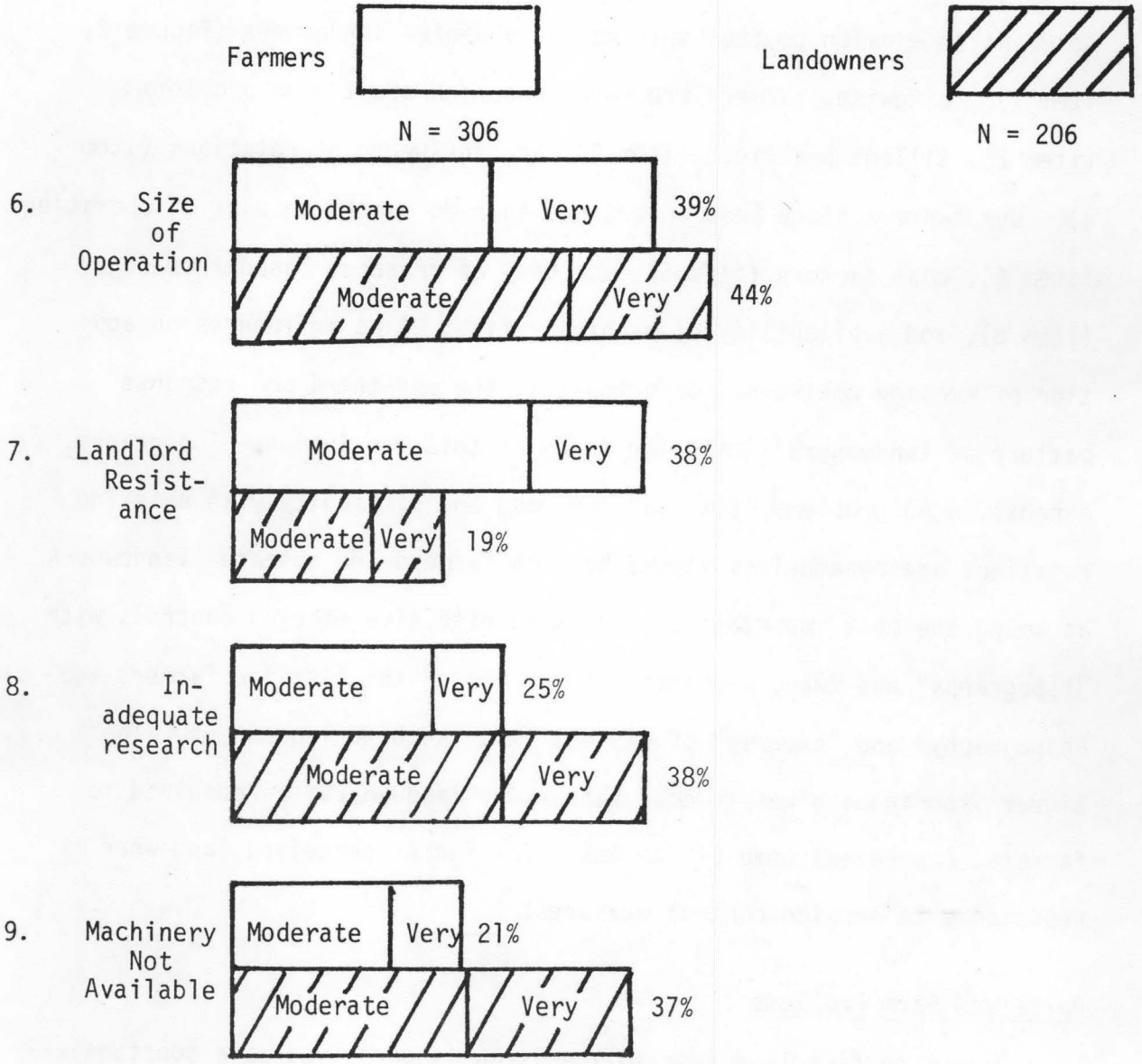


Figure 2 (Continued)

IMPORTANT REASONS FOR NOT CONTROLLING EROSION



absentee landowners, all of whom were drawn from locations outside the counties where the farmers are located; it is possible that locally located landowners might impose greater restrictions on farm operators than more distant absentee landlords.

Farmers give more weight to the Palouse hills topography as a deterent to erosion control than do the absentee landowners (Figure 2, item 1). Likewise, farmers are more concerned about weed problems (item 2), tillage practices (item 3), and influence of rotations (item 4). But farmers place less importance than do owners on size of operation (item 6), cost factors (item 5), adequacy of research based knowledge (item 8), and availability of machinery (item 9) as influences on adoption of erosion controls. Unfortunately the one-third non-response pattern of landowners limits the force of this conclusion. Topography, expense, weed problems, tillage problems, and difficulty with existing rotations are nonetheless viewed by both farmers and absentee landowners as among the most important deterents to effective erosion control, with "topography" and "weed problems" at the top of the list for farmers and "topography" and "expense" of highest importance to landowners. The higher importance given to cost factors by landowners, as compared to farmers, may reveal some of the basis for farmer perceived landowner resistance to erosion control measures.

Perceived Farm Problems

Damage to farm land from soil erosion is perceived as a substantially greater problem to farmers than absentee landowners. Thirty-two percent of farmers consider the issue a serious problem, compared to only 8% of owners (See Figure 3). Similarly, 21% of farmers consider ability (or inability) to control erosion as a serious issue, compared to 8% of

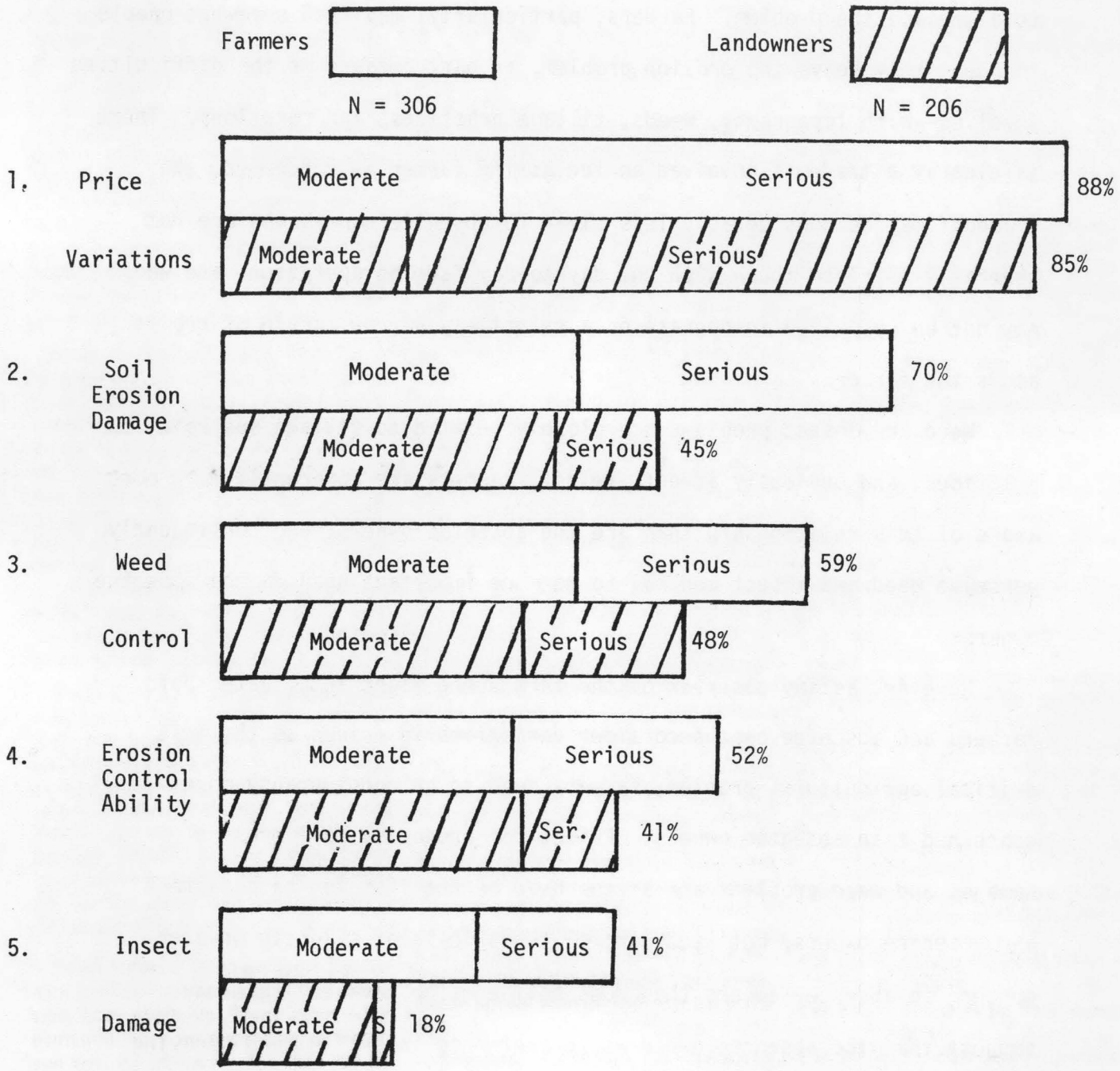
absentee owners. Both farmers and absentee owners consider damage to soil a greater problem than controlling erosion, suggesting a very strong concern about what is happening but less concern about what can be done to alleviate the problem. Farmers, particularly, may feel somewhat unable to adequately solve the erosion problem, in part because of the difficulties involved--with topography, weeds, tillage practices, and rotations. There is clearly a tradeoff involved so far as the farmer is concerned; the tradeoff may be considerably less clear to absentee owners who are not generally in close touch with the day-to-day farming operation, and who may not be compelled to operate on a relatively narrow margin of profit as is the farmer.

Weed and insect problems are closely related to tillage and rotation practices, and obviously affect yields. Farmers are apparently much more aware of this relationship than are the absentee owners, and consequently perceive weed and insect control to be more important than do the absentee owners.

However, as any observer of the farm scene might anticipate, both farmers and absentee owners consider variations in prices as the most critical agricultural problem; farmers tend to be considerably more concerned than absentee owners. Prices for products, soil erosion damage, and weed problems are at the head of the list for both farmers and absentee owners, but weed control tends to be of slightly greater concern to absentee owners than does soil erosion damage. This may suggest that the absentee owner would prefer to invest in weed spraying and tillage practices which control weeds, while the farmer might tend to invest at a somewhat higher rate in erosion control--particularly if the primary problem of prices were resolved by higher and more stable income to both farmers and landowners. This difference in priority between farmers and absentee owners may explain in part why

Figure 3

RELATIVE SEVERITY OF PROBLEMS*



*Land owner data was recalculated to exclude don't knows.

N = Number of Respondents

a high proportion of farmers tend to emphasize weed control tillage, investment in weed spray, and maximization of production--often with higher erosion as a consequence. Such a conclusion is supported by the data on farmer perception of absentee landowner influence.

The differences in priority are further supported by data comparing farmer and absentee owner reports on current use of erosion control practices (Table 10). Absentee owners tend to feel, at a considerably higher rate than farmers, that all available practices are in use for erosion control. Only 12% of the farmers indicate they are using all available practices, while 29% of the absentee owners perceive all practices to be in use. Farmers are more realistically aware that only partial use is made of available control practices; there is a rather major differential perception between farmers and absentee owners in this respect.

Table 10

WHAT ARE FARMERS IN YOUR AREA DOING TO CONTROL EROSION?

	Farmers	Landowners
	%	%
1. Using all available control practices	12	29
2. Using most of the available practices	50	39
3. Using some of the control practices	33	27
4. Using a few of the control practices	5	2
5. Not using any control practices	--	2
	N = 305	N = 172

A rather high proportion of both farmers (85%) and absentee owners (66%) feel that "everything reasonable" is already being done to counter erosion (Figure 4). Similarly, there is high agreement that something

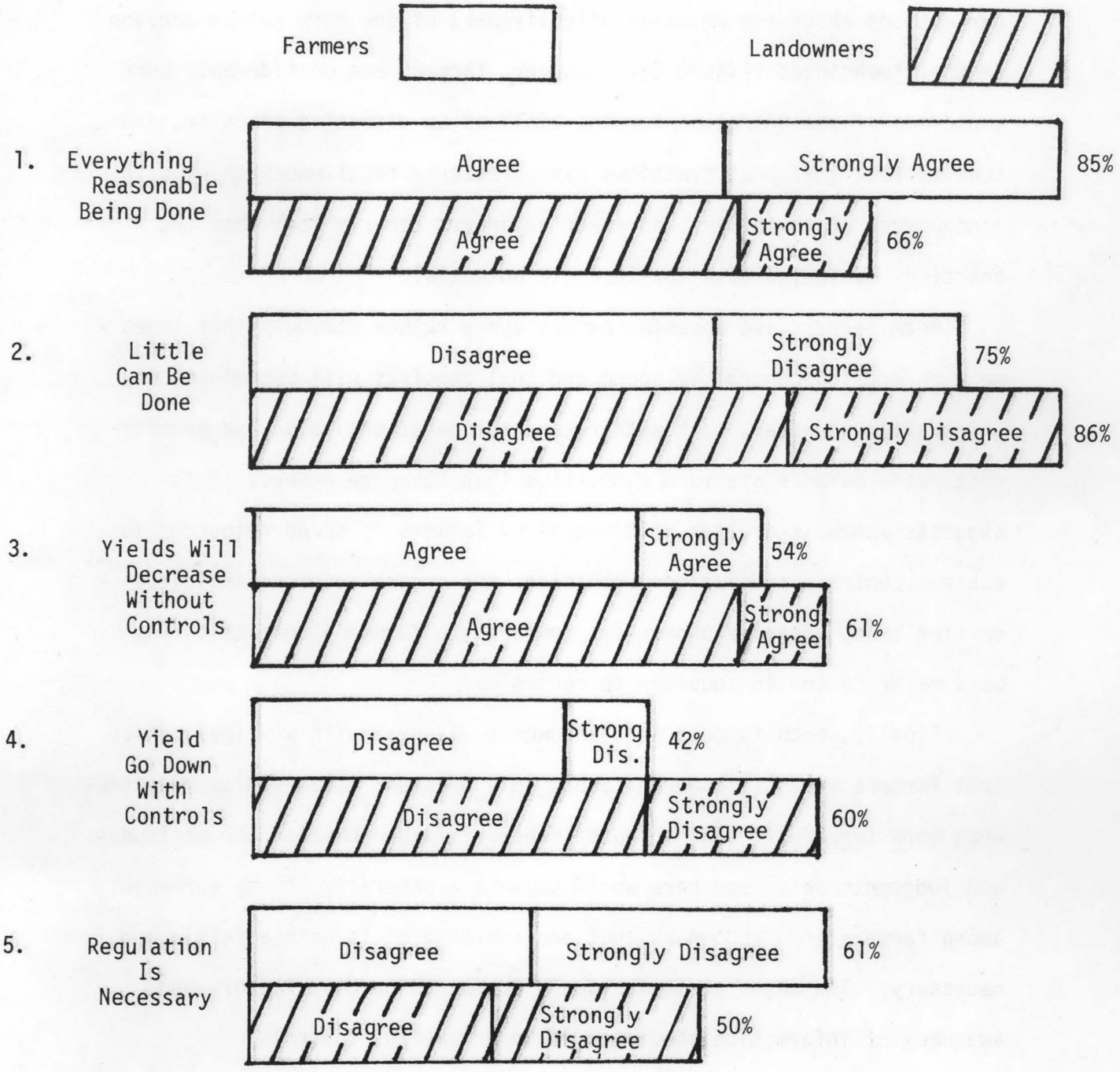
can be done. However, the absentee owner tends to feel more strongly than the farmer that less is presently being done than could be done. In other words, the absentee owner would appear to be more strongly in favor of additional diligence in erosion control than is the farmer.

This inclination is further illuminated by attitudes with regard to yields. Absentee owners (61%) tend to feel more strongly than farmers (54%) that yields will decrease without strong erosion controls, while disagreeing (60%) more strongly than farmers (42%) that yields will go down with controls. Again, the absentee owners appear more supportive of erosion controls than farmers. This might be interpreted as less realism or understanding among absentee owners, because of distance from direct involvement in the farming operation, or the absentee owners may simply have a higher commitment to preserving the land. In any case it does not appear on the basis of expressed attitudes that absentee owners would resist greater effort to control erosion.

Farmers are clearly less inclined (61%) than absentee owners (50%) to accept regulation as the mechanism to impose greater use of control practices. This is not surprising since the farmer is likely to be directly affected by the regulations as part of his daily activity. The absentee owner may be required to invest resources, but would obviously not have to face the annoyance of conforming to the details of government regulation. Nonetheless, absentee owners might tend to encourage regulation as a means of forcing farmers to undertake erosion control--particularly if they believed strongly that more needs to be done and perceive that farmers on their land are failing to do everything that seems appropriate to diminish soil loss.

Figure 4

JUDGMENTS ABOUT SOIL EROSION:



With very few exceptions farmers and absentee owners have similar perceptions about the relative effectiveness of the more common erosion control techniques (Figure 5). However, farmers are considerably more conscious of the potential for "no till" as an effective practice, and tend to feel that most practices have greater effectiveness than do the landowners. Both farmers and absentee owners clearly feel that the nine practices evaluated have considerable potential.

Both farmers and absentee owners agree rather strongly that investment in erosion control is sound and that benefits will outweigh costs (Figure 6). However, both with regard to investment value and benefit-cost ratio farmers are more supportive than absentee owners. This suggests somewhat greater willingness by farmers to spend resources to achieve control, and further emphasizes the greater concern indicated earlier among absentee owners (as compared to farmers) that costs may be a major factor in adoption to controls.

Finally, both farmers and landowners disagree with any implication that farmers are not concerned about soil erosion; farmers disagree somewhat more forcefully than absentee owners. Taken together the attitudes and judgments described here would suggest a generally strong agreement among farmers and landowners that erosion control is both possible and necessary. The major obstacles would appear to be cost factors and adequacy of information about how to undertake the controls.

FARMER-LANDOWNER INTERACTION

Communication between absentee landowners and their farm operators may be an important dimension of soil erosion control in the Palouse. Visual contact with their farm and verbal communication with the operator

Figure 5

EFFECTIVENESS OF EROSION CONTROL PRACTICES

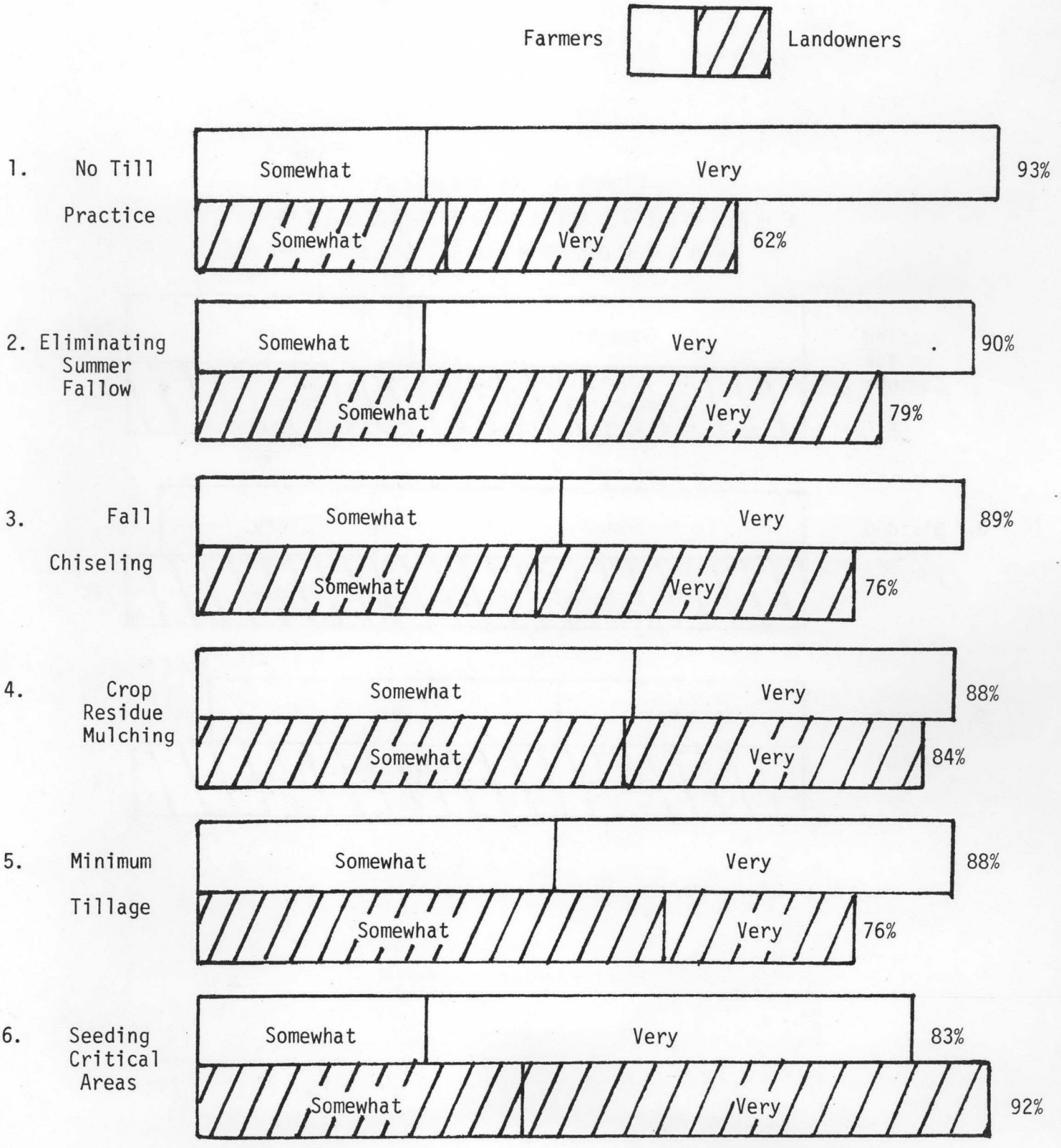


Figure 5 (Continued)

EFFECTIVENESS OF EROSION CONTROL PRACTICES

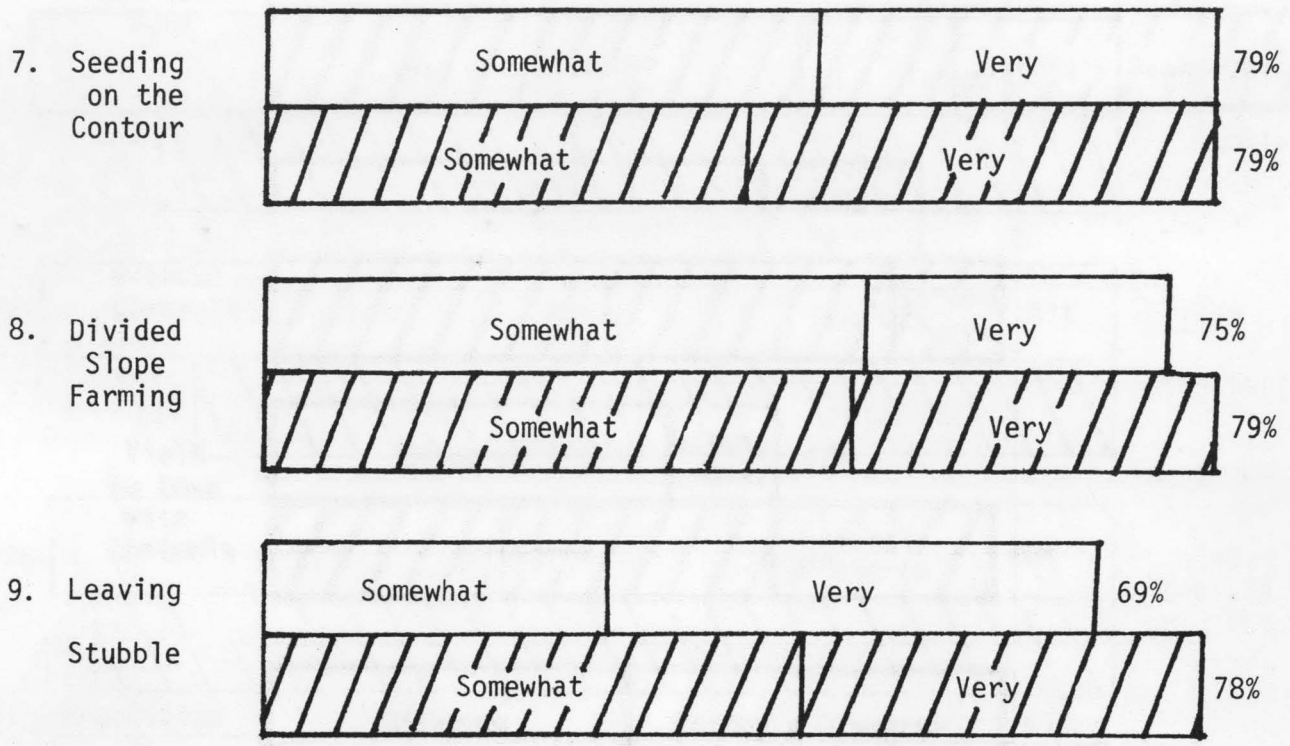
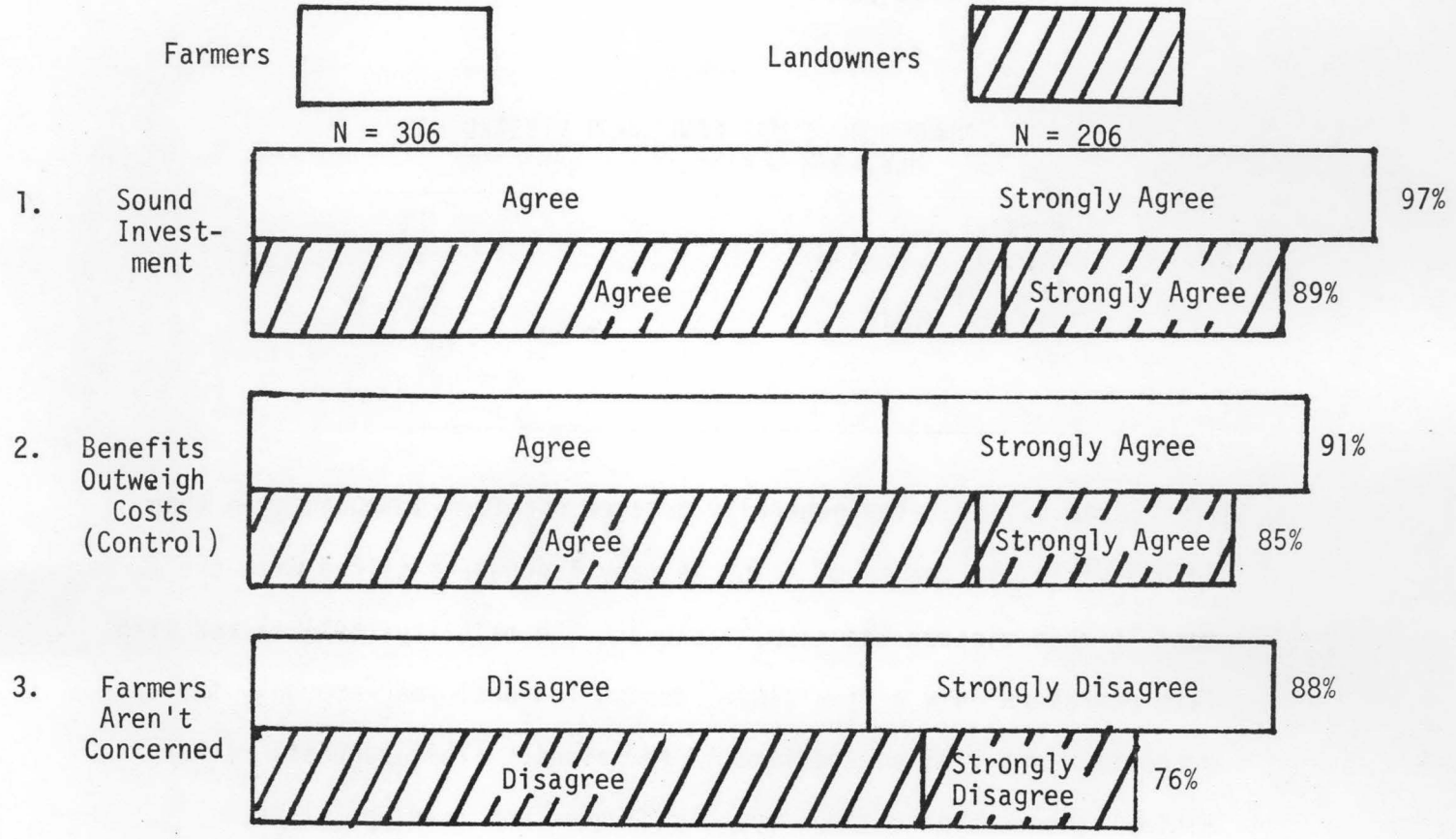


Figure 6

ATTITUDES ABOUT SOIL EROSION CONTROL:



may influence owner decisions about land use. Visitation to the farmland has at least two potentially important functions: (1) It allows the owner to see what is happening on his land; if erosion is severe the visual impact may be impressive to the owner; (2) It provides opportunity for face-to-face communication linkage between the farmer and landowner, which may facilitate discussion of a more varied range of farm operational details than would a phone call. The majority (69%) visit their farms a few times a year but 10% visited monthly or more (Table 11). About a fifth did not visit during the past year.

Table 11

NUMBER OF TIMES LANDOWNER VISITED HIS/HER FARM DURING PAST YEAR

Weekly	1%
Monthly	9
Few Times	69
Did Not Visit	21
	100
	N = 191

Table 12 indicates generally greater off-farm communication than actual visits to the farm; twice as many landowners talked with the farmer monthly than visited the farm. However, the majority (69%) talked with farm operators only a "few times" during the past year--roughly the same proportion who visited the farm a "few times." This suggests rather minimal interaction between most landowners and farm operators.

Table 12

NUMBER OF TIMES LANDOWNER TALKED WITH FARM OPERATOR DURING PAST YEAR

Daily	1%
Weekly	5
Monthly	22
Few Times	69
Did Not Talk	3
	100
	N = 206

While general communication between owner and operators may be indicative, unless such communication focuses on the problems of soil erosion it will likely have minimal impact on the adoption of erosion control practices. Do landowners talk to their operators about soil erosion? Do they encourage or discourage the operator to adopt conservation practices? Do they look at erosion control primarily in terms of its effect on production?

Fully 34% of the landowners never discuss soil erosion with their operators and an additional fifty-eight percent talked about the subject only once or twice a year (Table 13). However, among those owners who discuss the problem nearly 3/4 encouraged operators to use erosion control practices (Table 14).

Table 13

NUMBER OF TIMES LANDOWNER DISCUSSED SOIL EROSION WITH HIS FARM OPERATOR

Once or Twice a Month	1%
Less than Once a Month	7
Once or Twice a Year	58
Never	34
	100
	N = 196

Table 14

DEGREE TO WHICH LANDOWNERS ENCOURAGE OR DISCOURAGE USE OF SOIL EROSION PRACTICES BY FARM OPERATORS

Never Discussed	35%
Strongly Encourage	29
Somewhat Encourage	19
Neither Encourage or Discourage	17
Somewhat Discourage	--
Strongly Discourage	--
	100
	N = 186

INDIRECT OWNER INFLUENCE

Median income received by absentee owners from their farmland is about 24% of total income; the relationships between erosion control and potential yield may therefore be significant to them. Some farm operators argue that landlords are only interested in the income from their land and consequently resist use of conservation practices which might cost the owner money or decrease yields.

The data indicate that slightly over one-fourth of the owners would only encourage erosion control if yields would remain the same or increase (Table 15). Slightly over half would be willing to accept a slight loss of yield to control erosion, and 17% would encourage erosion control even if yields would decrease substantially. Thus, there appears to be partial validity to the argument that landlords would resist erosion controls that results in substantially less income. Nonetheless, a clear majority support erosion control to the extent of accepting a decline in yields.

Table 15

LANDOWNER ADVICE TO FARM OPERATOR
ON SOIL EROSION PRACTICES

Encourage if it would increase yields	6
Encourage if yields would not go down	22
Encourage even if yields would go down a little	55
Encourage even if yields would go down a lot	17
	100
	N = 177

Most absentee landowners apparently do not communicate extensively with their operators regarding erosion control. Thus, it would appear that educational efforts directed toward erosion control and transmitted

to farm operators may not be conveyed to landowners. Sufficient evidence of landowner influence is evident to suggest that appropriate information might usefully be directed to both the farm operator and absentee landowner.

Positive pressure from absentee landowners may also be an important factor in the adoption of practices, given the general positive attitudes toward controls. Most of the absentee owners inherited their land from either parents or spouse (64%) and are therefore probably not making large land payments; they may be able to afford conservation practices that reduce yields. However, factual information on conservation practices would seem to be an essential prerequisite to effective owner pressure on an operator who may have yield maximization as his primary goal. If an operator is inclined to exploit land for maximum short-term gain he may be unlikely to use expensive practices on leased land, as compared to owned land, unless he secures both verbal and financial support from owners.

In sum, the role of the absentee owner may be fairly crucial in controlling erosion on a major proportion of Palouse farmland, and should not be ignored if adequate erosion control is to be achieved.

SUMMARY AND CONCLUSIONS

Erosion, sedimentation and stream pollution from silt and chemicals with agricultural sources will continue to be major national and regional concerns. This study analyzes the attitudes and behavior of farmers and absentee landowners in the Palouse area of Washington and Idaho to help illuminate the reasons for adoption or failure to adopt control practices. The potential influence of absentee owners is particularly significant since 55% of the average farm is leased by the farmer from a non-resident owner.

More than half of all farmers use seven of nine potentially helpful practices. However, a considerable potential for increased use of practices remains because many farmers fail to consistently use the most desirable practices. Farmers appear not to have a comprehensive erosion control plan, but rather, use a group of helpful practices which are the least costly and troublesome to adopt.

Farmers perceive themselves as doing more to control erosion than their self-reported behavior indicates; this is particularly the case among farmers who have adopted the fewest controls. This suggests inadequate appreciation of the full range of possibilities (although most farmers report knowledge about most of the alternatives), or financial and technical limitations are considered major obstacles.

Larger farm size, higher gross income, and more advanced years of education tend to be positively associated with higher use of erosion control measures, while age, years in farming and acres of land owned reveal little relationship to erosion control adoption. The relatively modest levels of association between these farm or farm characteristics and erosion control suggests that other issues are in all likelihood more significant in explaining why erosion controls are not univerally adopted.

While revealing a generally critical attitude toward government involvement in agriculture, farmers support government participation in: provision of financial incentives for improved methods, promotion of agricultural exports, supporting farm product prices, and discouraging large scale corporate farming. There is a strong and clear preference to have any government control programs located at the most local (county) level.

The Soil Conservation Service, farm magazines, the Cooperative Extension Service, and Agricultural Research Centers are given strong credit for providing helpful information on soil erosion control measures. These sources of knowledge are apparently considered dependable to farmers.

Absentee Owner Influence

Absentee owners tend to be older than farmers (63, as compared to an average farmer age of 51), more educated, and are heavily female (57%). Roughly one-third tend not to be at all knowledgeable about technical dimensions of agriculture. These characteristics undoubtedly affect their influence (or lack of influence) on the farm operation.

Farmers tend to perceive absentee owners as more resistant to erosion control measures than owners perceive themselves. The owners generally consider themselves highly supportive of such efforts. However, farmers feel control of erosion is a considerably greater problem than do the owners, while owners feel additional control is needed to preserve yields. Owners are more concerned about the costs of control practices than are the farmers, and are more willing to accept outright regulation by government if necessary; they would accept a yield loss more readily if that were necessary to achieve erosion control. Most farmers and landowners feel erosion control is a good investment which will eventually outweigh the costs involved; farmers are somewhat more convinced of the payoff than owners.

There tends to be relatively little regular interaction between the farmer and absentee owner. They communicate more often by phone or letter than face-to-face on the farm. There tends to be little discussion among them of erosion control issues. This may explain in part why there is evidence of considerably misunderstanding of landowner preferences by farmers and vice versa. The need to reach the landowner, as well as the

farmer, with specific information about technical details and costs of control measures may also be implied.

Both farmers and owners are strongly concerned about the erosion issue and are generally supportive of increased emphasis on effective controls. Cost is clearly a concern and may obviously constrain adoption of some of the more worthwhile practices. Weed and insect control are high priority management issues to farmers and owners and may also constrain use of those practices which create increased pest management problems.

If some of the difficulties associated with effective erosion control can be overcome a substantial proportion of farmers and owners will probably support increased voluntary control of erosion, sedimentation, siltation and stream pollution, particularly if appropriate incentives are offered to offset direct costs and potential yield loss.

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