View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by SFA ScholarWorks

Stephen F. Austin State University
SFA ScholarWorks

Faculty Publications | Forestry

2001

Reforestation of harvested Timberlands in Mississippi: Behavior and Attitudes of Non-Industrial, Private Forest Landowners

J. E. Gunter

Steven H. Bullard
Stephen F. Austin State University, Arthur Temple College of Forestry and Agriculture, bullardsh@sfasu.edu

M. L. Doolittle

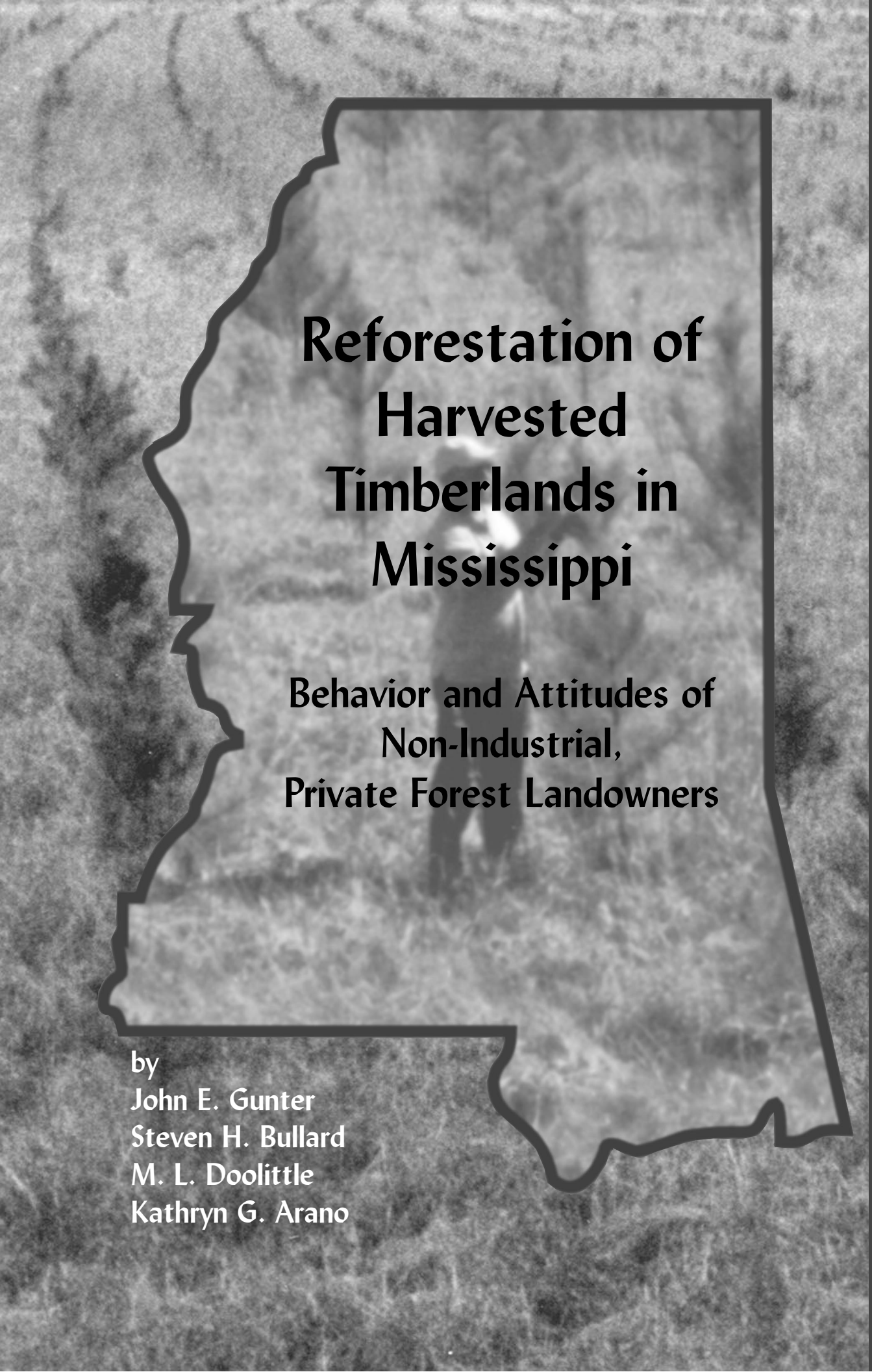
K. G. Arano

Follow this and additional works at: http://scholarworks.sfasu.edu/forestry


Part of the Forest Management Commons
Tell us how this article helped you.

Recommended Citation
Gunter, J. E.; Bullard, Steven H.; Doolittle, M. L.; and Arano, K. G., "Reforestation of harvested Timberlands in Mississippi: Behavior and Attitudes of Non-Industrial, Private Forest Landowners" (2001). *Faculty Publications.* Paper 47.
http://scholarworks.sfasu.edu/forestry/47

This Article is brought to you for free and open access by the Forestry at SFA ScholarWorks. It has been accepted for inclusion in Faculty Publications by an authorized administrator of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.



Reforestation of Harvested Timberlands in Mississippi

Behavior and Attitudes of Non-Industrial, Private Forest Landowners

by
John E. Gunter
Steven H. Bullard
M. L. Doolittle
Kathryn G. Arano

FWRC Research Bulletin
Bulletin #FO172
FWRC

This bulletin should be cited as:

Gunter, J.E., S.H. Bullard, M.L. Doolittle, and K.G. Arano. 2001. Reforestation of Harvested Timberlands in Mississippi: Behavior and Attitudes of Non-Industrial Private Forest Landowners. Forest and Wildlife Research Center, Bulletin #FO172, Mississippi State University. 25 pp.

Reforestation of Harvested Timberlands in Mississippi

Behavior and Attitudes of Non-Industrial Private Forest Landowners

by

John E. Gunter
Steven H. Bullard
M.L. Doolittle
Kathryn G. Arano

Forest and Wildlife Research Center

Mississippi State University

Funding for this research was provided by the Mississippi Forestry Commission

The authors are, respectively, Professor, Department of Forestry; Sharp Professor of Forestry, Department of Forestry; Sociologist, Social Science Research Center; and Graduate Research Assistant, Department of Forestry, Mississippi State University.

Table of Contents

List of Tables

INTRODUCTION

Southern forests play an increasingly important role in the timber economy as per capita demand for wood continues to expand. Moreover, harvest restrictions in the Pacific Northwest in the early 1990s shifted a large portion of United States demand for softwoods to the South. In Mississippi, most of the forestland is owned by non-industrial private forest (NIPF) landowners. Approximately 314,000 NIPF landowners control 66 percent of the state's forestland base (Hartsell and London 1995). The sizable acreage of timberland held by NIPF landowners nationally and in-state underscores the importance of their role in the timber economy and weighs heavily in the supply of raw material to the state's $11.4 billion forest products industry (Munn 1998).

Most forestry investment opportunities in the South involve regenerating harvested timberlands with softwoods. However, the most recent survey (1994) of forest conditions in Mississippi revealed that softwood removals exceeded growth by approximately 12 percent (Hartsell and London 1995). Anecdotal evidence points towards an acceleration in harvest levels for softwoods in the intervening years since the field data for the survey were collected. Although planting activities of industrial owners have kept pace with harvesting this is not the case with NIPF landowners (Adams and Haynes 1991). There is considerable concern within the forestry community that significant numbers of NIPF landowners are not providing for reforestation of their timberlands following harvest. This concern is particularly acute for pine sites where nature frequently requires assistance. The shortfall in reforestation is occurring despite such incentives as cost share payments under Mississippi's Forest Resource Development Program, Federal income tax credits and amortization, a state Seed Tree Law that stipulates minimal provisions for reforestation following harvest and the new Mississippi Reforestation Tax Credit program. Policy makers, including key leaders in the legislature, are asking why some NIPF landowners reforest, while others don't; and what, if any, new or expanded state programs are needed to insure a sustainable supply of raw materials to the state's largest industry? This research project was conducted to provide answers to these questions. Reasons behind landowner decisions concerning reforestation of recently harvested lands were identified. Attitudes toward hypothetical incentive programs and regulatory measures were also described.

RELATED STUDIES

Several studies have been conducted to understand the behavior of NIPF landowners with respect to forest management. Some of these studies have looked into the reforestation behavior of landowners, particularly the determinants of reforestation decisions and the differences between regenerators and non-regenerators.

Royer and Kaiser (1983) examined the rationale underlying the reforestation decisions of private landowners in the South. Reforestation activities were most common on clear-cut sites, while less common on partially cut sites. The main reason cited for reforesting was a feeling of obligation to keep the land productive. On the other hand, the belief that pines would come back naturally was the primary reason cited by landowners for not reforesting. Participation in reforestation was positively-related to large holdings, above-average education and income, and inversely-related to age.

Doolittle and Straka (1987) investigated the differences between regenerators and non-regenerators using a diffusion of innovations model. NIPF landowners who had regenerated were similar to early adopters; owners who had not regenerated were similar to late adopters. The early adopters were more inclined to attach a high level of importance to timber management. Late adopters were reluctant to invest in forestry practices, because they are neither venturesome nor risk takers. Management practices of landowners differed based on their degree of innovativeness and the rate at which they adopted new ideas.

More recent studies on landowners' reforestation behavior have made use of sophisticated statistical techniques. Royer (1987) employed an econometric analysis to examine the reforestation behavior of southern landowners. Using logistic regression, he investigated the influences of public programs, market factors and landowner characteristics on the probability of actively regenerating pine. He found reforestation costs, government cost-sharing income, and technical assistance to be highly significant determinants of reforestation. Pulpwood prices were also a contributing factor, but at a slightly lower confidence level. Hyberg and Holthausen (1989) extended this line of research by using logistic regression to model the harvest timing and reforestation investment decisions of private landowners in Georgia. The variables that significantly affected the reforestation behavior of landowners were income, acreage, technical assistance, knowledge of cost sharing, reforestation costs, and stumpage prices.

METHODS AND PROCEDURES

A telephone survey of NIPF landowners in Mississippi was conducted between March 15 and May 30, 2000, to determine their behavior with respect to harvesting and reforestation decisions and their attitudes toward reforestation incentives and regulations. Dillman's (1978) total design method for survey procedures was followed.

The sampling frame consisted of all Mississippi landowners not living in "Delta counties" who owned at least 20 acres of uncultivated land. The 20 acre threshold eliminates many non-forestry uses (e.g. home sites). Furthermore, NIPF landowners who own less than 20 acres account for only 8.5 percent of the state's uncultivated acreage (Doolittle 1996). An interview schedule was constructed and used in collecting necessary information from the landowners during a telephone interview. Landowners drawn in the sample who did not harvest timber during the period 1994 through 1998 were interviewed briefly. Those who harvested timber during the time period were interviewed in depth.

From 62 counties with landowner records, a simple random sample of about 22 percent was drawn. Names and addresses were matched with telephone records to get telephone numbers. This resulted in about a 50 percent match or just under 11,000 telephone numbers. From these telephone numbers, 7,391 respondents were contacted. Of the respondents contacted, 340 refused to be interviewed, 6,222 were screened but did not qualify for the interview, and 829 completed the interview (427 of these had reforested and 402 had not). This final sample size achieved the targeted 5 percent sampling error at the 95 percent confidence level.

Survey results were summarized and analyzed using the Statistical Package for the Social Sciences (SPSS, Inc. 1999) and the Statistical Analysis System (SAS Institute 1996). Specifically, relative frequencies, and in some cases means, were calculated to summarize the survey results. Moreover, chi-square tests and analysis of variance (ANOVA) were also conducted to analyze the reasons behind reforestation decisions.

RESULTS

Demographic and Socio-economic Characteristics of Regenerators and Non-Regenerators

Figures 1 - 8 and tables 1 & 2 present demographic and socio-economic information about the landowners (i.e., size of land holding, income, year of birth, gender, race, education, place of residence, occupation and type of ownership) and whether the characteristics examined had a significant relationship with the decision to regenerate. Statistical analyses showed that size of land holding, total household income, gender, race, education, place of residence and occupation were significantly related to the decision to regenerate.

In terms of ownership size (Figure 1), the results indicate that regenerators own larger parcels of timberland. About 4.9% of the regenerators owned 5000 acres or more while a smaller percentage (1.2%) of non-regenerators owned lands under this category. For the smallest land category (20-49 acres), only 14.3% of the regenerators owned timberlands of this size but 30.3% of the non-regenerators were in this category.

The income level of regenerators also appears to be higher than that of the non-regenerators (Figure 2). Only 4.9% of the regenerators had an income level under $10,000 annually, while 8.0% of the non-regenerators were in this category. By contrast, in the highest income category (i.e. over $100,000), 13.3% of the regenerators earned this income annually, while

Approximately 5% of landowners who regenerate owned 5,000 acres or more.

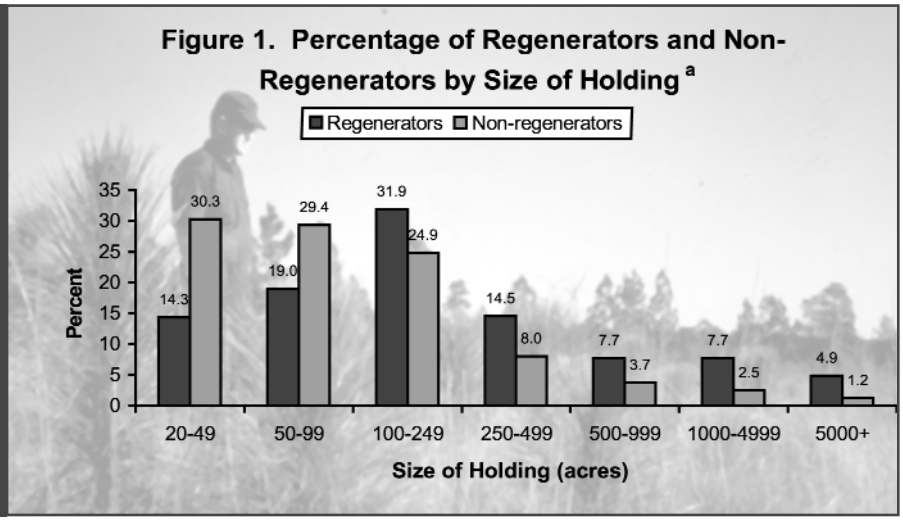
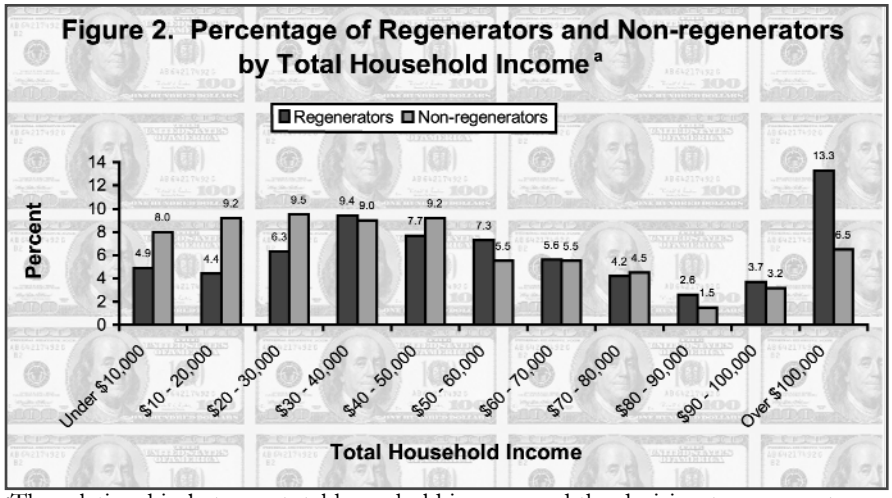


Figure 1. Percentage of Regenerators and Non-Regenerators by Size of Holding [a]

[a]The relationship between size of holding and the decision to regenerate **was statistically significant** at α=0.05.



[a]The relationship between total household income and the decision to regenerate **was statistically significant** at α=0.05.

only 6.5% of the non-regenerators had this high an income.

Year of birth (Table 1) was not statistically related with the decision to regenerate.

In terms of gender, 77.8% of the landowners in the survey were male and 21.8% female. Curiously, the majority of males (53.6%) were regenerators, while the majority of females (55.2%) were non-regenerators (Figure 3).

With regards to race, 93.7% of the landowners interviewed were white and 6.5% black. A 54.2% majority of white landowners were regenerators, while 45.8% were non-regenerators (Figure 4). On the other hand, only 13.0% of black landowners were regenerators, while 87.0% were non-regenerators.

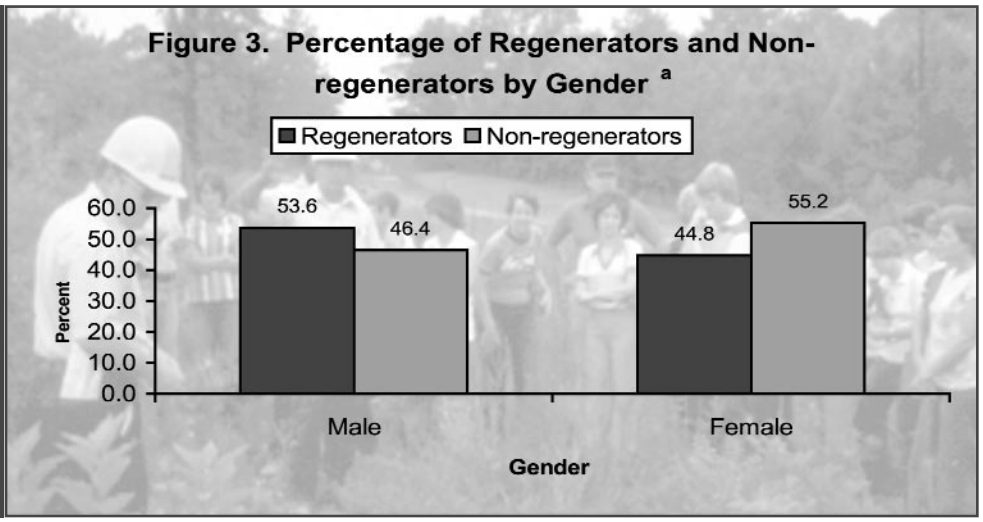
Regenerators attained more education than did the non-regenerators (Figure 5). About 28.1 % of the regenerators attained a college degree, while only 14.2% of the non-regenerators had reached this level of education. Moreover, 16.9 % of the regenerators had advanced degrees, but only 10.9 % of the non-regenerators had such degrees.

Although both regenerators and non-regenerators tended to reside on a farm or in rural areas (Figure 6), a smaller proportion of the regenerators were rural residents (64.4%) than was the case with non-regenerators (75.2%). Conversely, 19.6% of the regenerators lived in cities with populations of 10,000 and above, but only 10.4% of the non-regenerators lived in these areas.

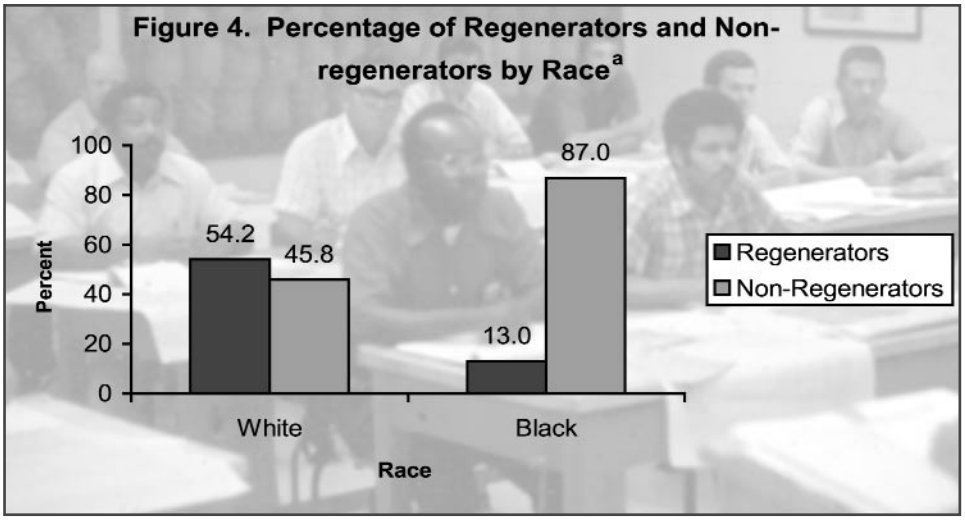
In terms of occupation, the largest single category was "retired" for regenerators (39.2%) and non-regenerators (37.3%) alike (Figure 7). A larger proportion of the regenerators were professionals (18.9%) or business persons (10.6%) than were non-regenerators (15.1% and 8.1%, respectively). Only 7.5 % of the regenerators were wage earners, 15.3% of the non-regenerators were in this category.

Type of ownership was not significantly related with the decision to regenerate (Table 2).

The majority of males were regenerators, while the majority of females were non-regenerators.



[a]The relationship between gender and the decision to regenerate **was statistically significant** at α=0.05.



[a]The relationship between race and the decision to regenerate **was statistically significant** at α=0.05.

Type of Harvest and the Reforestation Decision

Table 3 presents information about the number of regenerators and non-regenerators by type of harvest during the period from January 1, 1994, through December 31, 1998. Of course, all of the 427 regenerators and the 402 non-regenerators had made a final harvest during this time frame, otherwise they would not have been included in the sample. For other types of harvests, both thinning and salvage cutting had a statistically significant relationship with the decision to regenerate; partial cutting did not. A larger percentage of the regenerators had conducted thinnings (18.7%), versus 8.7% of the non-regenerators. Similarly, 10.3% of the regenerators engaged in salvage cutting, while only 6.0% of the non-regenerators carried out this activity.

Table 4 shows the number of regenerators and non-regenerators by year of most recent final cut. The relationship between year of most recent final cut and the decision to regenerate was statistically significant. A larger percentage of the regenerators had their final cut during the latter part of the period, while a larger percentage of the non-regenerators conducted their most recent final cut in the earlier years of the period.

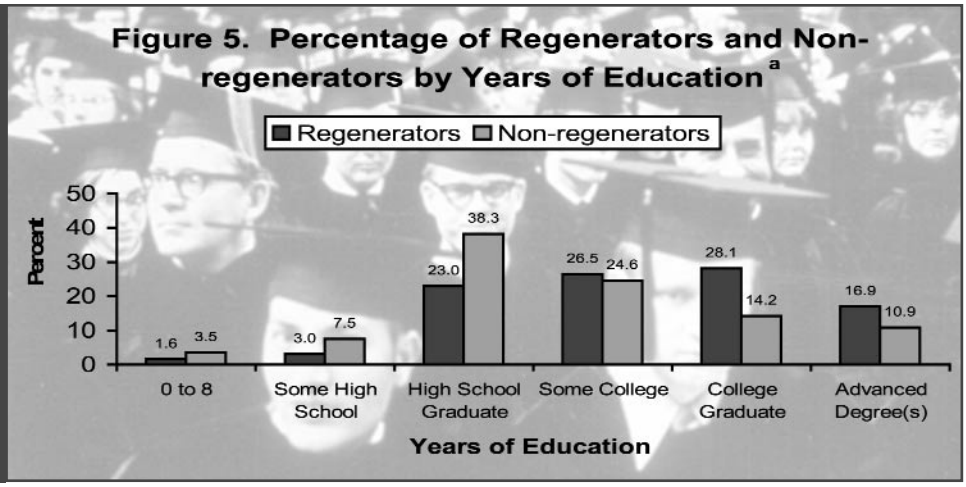
Attitudes and Behavior of Regenerators

Tables 5 - 8 present information about landowners who decided to reforest their harvested timberlands. Most (92.3%) of the landowners who regenerated planted pine seedlings (Table 5). Surprisingly, 16.4% of the regenerators also left pine trees for a seed source.

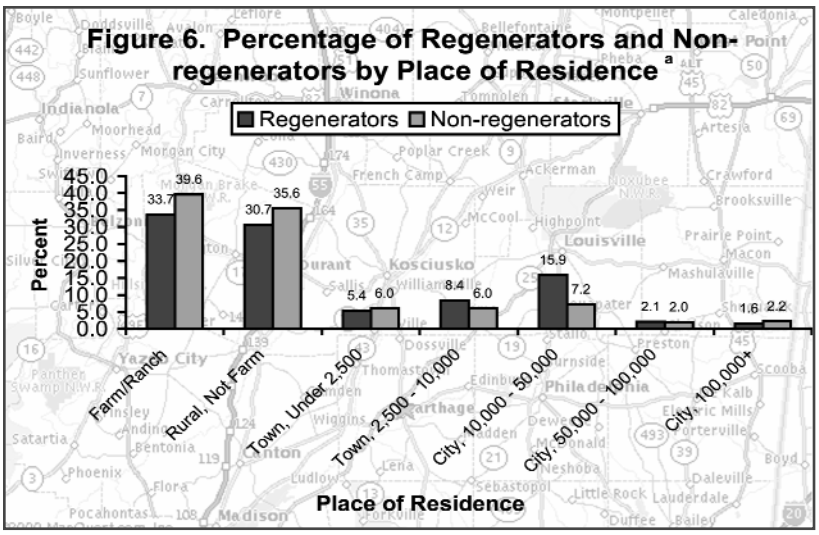
Activities performed by regenerators prior to reforestation in order of occurrence included burning (43.3%), site preparation using machinery (33.3%), and application of herbicides (16.4%) (Table 6).

With regards to government assistance programs, the majority (54.3%) of the regenerators did not receive cost shar-

Approximately 45% of the regenerators held college degrees.



[a]The relationship between years of education and the decision to regenerate **was statistically significant** at α=0.05.



[a]The relationship between place of residence and the decision to regenerate **was statistically significant** at α=0.05.

ing (Table 7). Among those regenerators who did receive cost-share funds, the major source of funding was state government (63.5%).

Regenerators were also presented with a list of possible reasons for regenerating and were asked to rank the importance of each reason (Table 8). Far and away, the two leading reasons were: (1) the desire to keep the land in timber production; and (2) the desire to be good stewards of the natural environment. The availability of cost-sharing from public agencies was considered the least important of the reasons for regenerating.

Attitudes and Behavior of Non-Regenerators

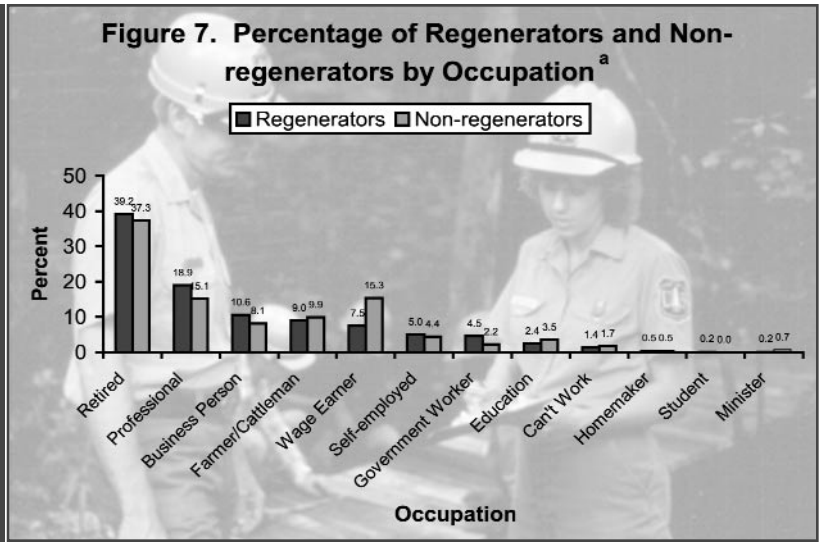
Information about the attitudes and behavior of non-regenerators is shown in tables 9 - 10. Non-regenerators were presented with a list of reasons for not regenerating and asked about the degree of importance of each reason (Table 9). The two reasons that ranked the highest in importance were: (1) the belief of landowners that the site would reforest itself to pine naturally; and (2) the high cost of reforestation. The preference for growing hardwood on the tract ranked the lowest in level of importance.

Most (74.9 %) of the landowners who did not regenerate did not seek advice from professional foresters (Table 10). Non-regenerators who actually did seek advice from professional foresters were asked about their most useful source of advice/assistance. Consulting foresters were considered to be the most useful source of advice. Specifically, 40.4 % of those who asked for advice/assistance cited a consulting forester as the most useful source. Second in importance as a source of advice/assistance were Mississippi Forestry Commission foresters (23.2%). Extension foresters and industry foresters were considered to be the most useful source of reforestation advice or assistance only 7.1% and 6.1% of the time, respectively.

Reforestation and Investment Decisions

Landowner perceptions and attitudes regarding vari-

The largest single occupational category was "retired" for both regenerators and non-regenerators.



[a]The relationship between occupation and the decision to regenerate **was statistically significant** at α=0.05.

ous forestry and non-forestry investments are shown in tables 11 - 12. Specifically, landowners were asked about their lowest "acceptable" rate of interest for forestry investments (timberland investment lasting 5 years; timberland investment lasting 15 years; and timberland investment lasting 25 years) and non-forestry investments (savings account; certificate of deposit; and money invested in stocks, bonds and mutual funds). The differences in the average lowest "acceptable" rate of interest for timberland investments lasting 5 years between regenerators and non-regenerators were found to be statistically significant (Table 11). In this case, regenerators expected a higher rate of interest (8.91%) than did non-regenerators (7.60%). For timberland investments lasting 15 and 25 years, the differences in the acceptable rates of interest between regenerators and non-regenerators were not significant. The differences in the rates of return for the three non-forestry investments between regenerators and non-regenerators were also not statistically significant.

Landowners were also asked whether they consider a pine plantation investment riskier than other potential investments (Table 12a). The relationship between landowners' responses and the decision to regenerate was statistically significant; that is, non-regenerators considered pine plantation investments riskier than regenerators did. About 19.9% of the non-regenerators indicated that a pine plantation investment is riskier than other potential investments, while only 15.9% of the regenerators thought the same.

In relation to the previous question, landowners were also asked whether they expect a higher interest rate because pine plantation investments are riskier, and, if they do, the additional percentage points they expect as compensation for the increased risk. The relationship between landowners' responses regarding the riskiness of pine investments and the decision to regenerate was not statistically significant (Table 12b). Similarly, the relationship between the additional percentage points and the decision to regenerate was not statistically significant (Table 12c).

Regulation of Reforestation by the State

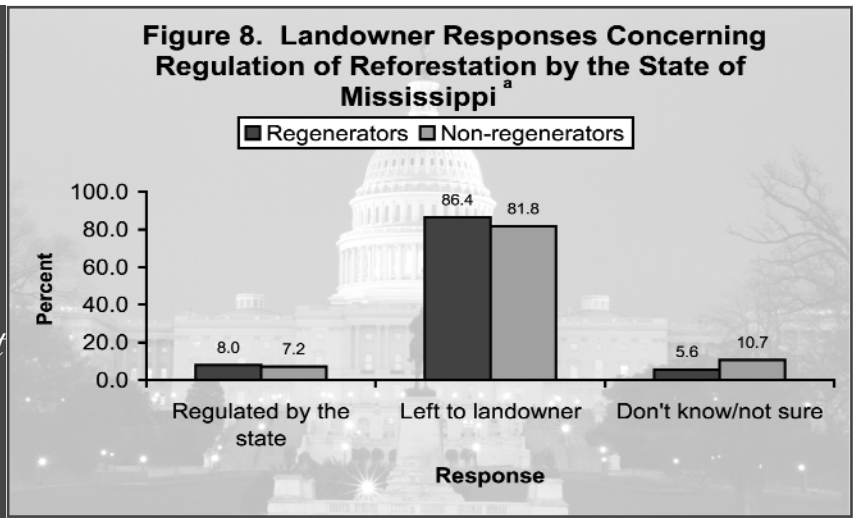
Figure 8 presents landowners' responses to whether reforestation should be regulated by the State of Mississippi or left to landowners. While landowners' options concerning regulation of reforestation had a statistically significant relationship with the decision to regenerate, the vast majority of regenerators (86.4%) and non-regenerators (81.8%) alike think that reforestation should be left to the landowner. Only 8.0% of the regenerators and 7.2% of the non-regenerators agreed that reforestation should be regulated by the State.

Reforestation Loan Program

Government programs have been an important tool to encourage landowners to engage in reforestation activities. A hypothetical reforestation loan program was described to the landowners and they were asked about their level of interest in it. Landowner responses about the hypothetical loan program are presented in tables 13 - 14. Acceptance of the hypothetical reforestation loan had a statistically significant relationship with the decision to regenerate (Table 13a). That is, a larger percentage of the regenerators showed interest in the loan than did the non-regenerators. However, most of the landowners in both categories were not interested in the idea of a loan from the state. Only 36.8% of the regenerators showed an interest in the program, while 56.0% were not interested. For the non-regenerators, 28.1% were interested and 60.4% were not interested.

The relationship between landowners' reasons for not wanting to borrow money from the state and the decision to regenerate was also statistically significant (Table 13b). The idea of being in debt (21.3%), using the land as collateral for the

The vast majority of regenerators and non-regenerators think that the decision to reforest should be left to the landowner.



[a]The relationship between landowners' response and the decision to regenerate **was statistically significant** at α=0.05.

loan (17.1%), and not needing a loan (15.0%) were the top three reasons for the lack of interest among the regenerators. For the non-regenerators, the top three reasons they were not interested in a state-sponsored reforestation loan were: not wanting to use the land as collateral (27.6%); not wanting to be in debt (17.7%); and old age (13.6%). For those landowners who were not sure of their response, the main reason cited by both landowner groups was the need for more information/ time to think (Table 13c). The relationship between landowners' reasons for being unsure about borrowing and the decision to regenerate was statistically significant.

For the hypothetical reforestation loan and an additional loan of $25/acre/year for ten years, the relationship between landowners' responses and the decision to regenerate was not statistically significant (Table 14a). The majority of the landowners for both groups were still not interested in a loan. However, while not shown per se in the tables, adding the additional loan of $25/acre/year for ten years increased the number of "Yes" responses among regenerators by 6.1% (36.8% to 42.9%) and non-regenerators by 8.2% (28.1% to 36.3%) for a combined total increase of 7.1% (32.6% to 39.7%) over the percentage of "Yes" responses to the reforestation loan only question. The largest increase in level of interest, 12.8%, came from black non-regenerators. Among white non-regenerators, the number of "Yes" responses to the two loans increased by 7.7% over that for a single reforestation loan.

The top reasons cited for not being interested in the two loans differed significantly between the regenerators and non-regenerators (Table 14b). Among the regenerators, the primary reasons given were: not wanting to borrow or be in debt (24.6%); not wanting to use land as collateral (14.7%); distrust in government (12.0%); and not needing to borrow (12.0%). By contrast, the foremost reasons among the non-regenerators were: not wanting to use land as collateral (24.9%); not wanting to borrow or be in debt (20.8%); and old age/health reasons (14.7%).

For those landowners who were not sure if they would be interested in the two loans, the main reason was the need for more information/time to think (Table 14c).

Assistance, Incentive and Educational Programs

The availability of assistance/incentive programs has long been known to encourage landowners to engage in reforestation. Landowners' awareness of the different incentives, assistance and educational programs available to them is presented in tables 15 - 19.

Table 15 presents information about the awareness of landowners of existing government incentive programs available to encourage reforestation. In general, regenerators were more aware of all the programs than were non-regenerators. The difference in awareness between the two groups about the Conservation Reserve Program (CRP), Forestry Incentive Program (FIP), Mississippi Forest Resource Development Program (FRDP), the Federal Income Tax Incentives and the Mississippi Reforestation Tax Credit was statistically significant.

Landowners were also asked whether they participated in any landowner assistance program sponsored by forest industry (Table 16). The majority of the landowners in both groups did not participate in a program. However, a larger percentage (11%) of the regenerators participated. Only three percent of the non-regenerators participated in such a program. These differences were statistically significant.

The relationship between landowners' attendance of educational programs and the decision to regenerate was statistically significant (Figure 9). Whereas 35.8% of the regenerators came to these educational programs, only 11.9% of the non-regenerators attended. However, a majority of the landowners in both groups did not attend. For those who attended such programs in the last five years, regenerators had a statistically significant higher rate of attendance than the non-regenerators (Table 17a).

Landowners were also asked who sponsored or co-sponsored the educational programs they attended (Table 17b). Since the differences between the two groups concerning program sponsorship were not statistically significant, we refer only to the combined totals. The majority (64.7%) of landowners had attended educational programs sponsored by the Mississippi State University Extension Service. A 56.7% major-

Regenerators had a higher rate of attendance at educational programs than the non-regenerators

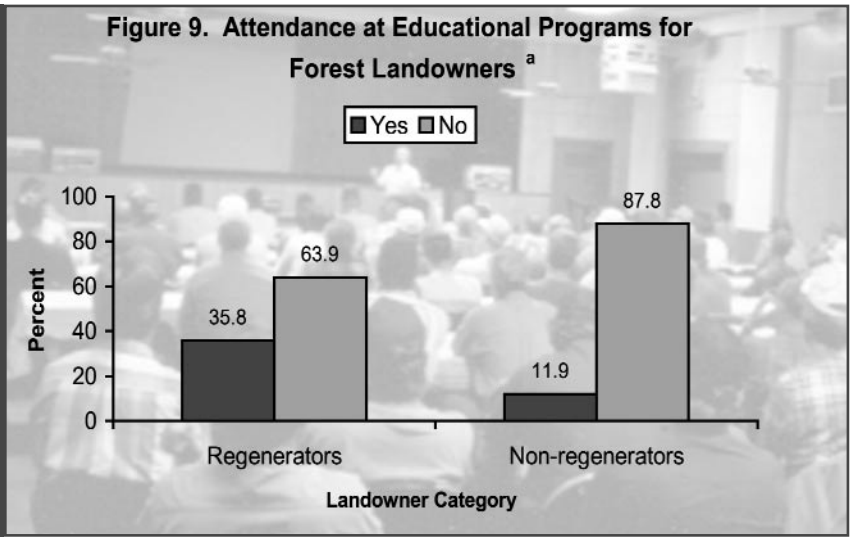


Figure 9. Attendance at Educational Programs for Forest Landowners [a]

[a]The relationship between landowners' yes/no response and the decision to regenerate **was statistically significant** at α=0.05.

ity had also attended programs by local County Forestry Associations. More than one in five of the landowners had also attended programs sponsored by the Mississippi Forestry Association (45.3%), Mississippi Forestry Commission (28.4%) and a Soil and Water Conservation District (22.9%).

Tables 18 and 19 present several sources of information on managing forestlands and their importance to regenerators and non-regenerators. Except for meetings, short courses and workshops, all the cited sources of information had a statistically significant relationship with the decision to regenerate (Table 18). Regenerators regarded all sources of information as more important than the non-regenerators did. When high and moderate importance scores were combined to develop a ranking, the most important sources of information for the regenerators were books, bulletins, newsletters (77.5%), followed closely by the Mississippi Forestry Commission (76.3%), the Extension Service (71.5%), and other forest landowners (71.5%). For the non-regenerators, the most important sources of information were books, bulletins, newsletters (67.2%), the Extension Service (60.5%), other forest landowners (59.4%) and the Mississippi Forestry Commission (56.0%). Other sources of information cited by the landowners included consultants, the internet, media, friends, self, loggers, and other government agents (Table 19).

SUMMARY AND CONCLUSIONS

Studying landowner characteristics and behavior is important in understanding which factors are most useful in predicting forest management activity or the lack thereof. This study examined landowner characteristics and how they were related to reforestation decisions. Regenerators and non-regenerators were compared based on a number of demographic characteristics. Results of the study indicate that demographic characteristics can have significant bearing on landowners' decision to regenerate. Regenerators tend to have larger ownerships and higher income levels, and they tend to be better educated and work in professional or business occupations. Further, regenerators are more likely to be white males living in larger cities as compared to non-regenerators. Landowners who harvested most recently are also more likely to reforest.

Among regenerators, the two leading reasons for regenerating harvested timberland included the desire to keep the land in timber production and the desire to be good stewards of the natural environment. On the other hand, the two most important reasons for not regenerating included the belief that the site would reforest itself to pine naturally and the high cost of reforestation. Earlier, Royer and Kaiser (1983) had similar findings about landowners in the South. Knowledge of the specific reasons for regenerating and not regenerating is important in developing policies and programs that address key issues faced by these two groups of landowners.

Although a number of the regenerators in our survey had taken advantage of cost-sharing funds offered by the government, the majority of them still did not use this incentive. Results also indicate that awareness about the availability of government incentive programs as well as attendance in educational programs may encourage landowners to regenerate their harvested timberlands. A larger percentage of regenerators were aware of these programs and they also had a higher rate of participation in educational programs. Efforts should be made to inform non-regenerators about the availability of reforestation assistance/incentive programs to encourage them to regenerate. Since these landowners considered the high cost of reforestation to be one of the important reasons for not regenerating, they should be made aware of the availability of government programs that can assist them in their reforestation endeavor. Moreover, educational programs should target this landowner group. Most of these landowners received no assistance from a professional forester, which may have contributed to their decision not to reforest. It is very likely that they were uninformed of the reforestation options available to them.

Attitudes toward forestry and non-forestry investments did not differ a lot between regenerators and non-regenerators in Mississippi. The differences in the "acceptable" rate of return between regenerators and non-regenerators for timberland investments lasting 15 and 25 years were not statistically significant. However, for a timberland investment lasting 5 years, the difference in the rate of return was statistically significant. Non-regenerators also considered pine regeneration riskier than do regenerators. The differences in the acceptable rate of return for non-forestry investments (e.g. savings account, CD, stocks) between regenerators and non-regenerators were also not statistically significant. In general, landowners prefer shorter-term forestry investment to longer-term forestry investment. Their acceptable rate of return in a shorter-term investment was lower than their rate of return in the longer-term forestry investment (see Bullard et al. 2001).

Results of the study also indicate that reforestation loan programs may not be appealing to many Mississippi NIPF landowners, especially if the land has to be used for collateral. The majority of landowners in both groups were not interested in the hypothetical reforestation loan program described in the study. Being in debt and using the land as collateral for the loan were among the top reasons for this lack of interest. In general, results indicate that regenerators are more likely to participate in a loan program than are non-regenerators. This does not mean that landowners do not need such assistance. The high cost of reforestation has been a significant constraint to some landowners who do not reforest. Non-regenerators would seemingly benefit from all the financial assistance they can get in their reforestation activities. Since there are already a number of existing programs (e.g. Forest Resource Development Program) that provide assistance/incentive to landowners, efforts should be directed to providing information to these landowners on the availability of such incentives/assistance. The low participation rate of landowners in these programs is an indication that there is a need for this type of action. Landowners, especially non-regenerators, should be informed about different reforestation options available to them and the economic benefits of reforestation. Alternative loan programs that will not require landowners to use their land for collateral could also be proposed.

LITERATURE CITED

Adams, D.M. and R.W. Haynes. 1991. Softwood timber supply and the future of the southern forest economy. Southern Journal of Applied Forestry 15(1): 31-37.

Bullard, S.H., J.E. Gunter, M.L. Doolittle, and K.G. Arano. 2001. Discount rates for non-industrial private forest landowners in Mississippi: How high a hurdle? Southern Journal of Applied Forestry (forthcoming).

Dillman, D.A. 1978. Mail and telephone surveys - the total design method. John Wiley and Sons, New York. 325p.

Doolittle, L. and T.J. Straka. 1987. Regeneration following harvest on non-industrial private pine sites in the South: A diffusion of innovations perspective. Southern Journal of Applied Forestry 11(1):37-41.

Doolittle, M.L. 1996. An inventory of private landowners in Mississippi. Social Science Research Center, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University. 32p.

Hartsell, A.J. and J.D. London. 1995. Forest statistics for Mississippi counties-1994. Resource Bulletin SO-190. New Orleans, LA: US Department of Agriculture, Forest Service, Southern Forest Experiment Station. 89p.

Hyberg, B.T. and D.M. Holthausen. 1989. The behavior of nonindustrial private forest landowners. Canadian Journal of Forestry 19: 1014-1023.

Munn, I.A. 1998. Forestry in Mississippi. The Impact of the Forest Products Industry on the Mississippi Economy: An Input-Output Analysis. FWRC Research Bulletin #FO 087. Forest and Wildlife Research Center, Mississippi State University. 12p.

Royer, J.P. 1987. Determinants of reforestation behavior among southern landowners. Forest Science 33(3): 654-667.

Royer, P.R. and H.F. Kaiser. 1983. Reforestation decisions on harvested southern timberlands. Journal of Forestry 81:657-659.

SAS Institute. 1996. Statistical Analysis System for Windows. SAS Publishing, Cary, N.C.

SPSS, Inc. 1999. Statistical Package for the Social Sciences 10.0 for Windows. Prentice Hall, Englewood Cliffs, NJ.

Table 1. Number and percentage of regenerators and non-regenerators by year of birth of NIPF landowner who harvested timber between 1994 and 1998.[a]

Year of birth	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. 1910 or before	2	0.5	1	0.2	3	0.3
2. 1911-1920	28	6.6	23	5.7	51	6.2
3. 1921-1930	106	24.8	93	23.1	199	24.0
4. 1931-1940	105	24.6	93	23.1	198	23.9
5. 1941-1950	92	21.5	88	21.9	180	21.7
6. 1951-1960	67	15.7	70	17.4	137	16.5
7. 1961-1970	16	3.7	22	5.5	38	4.6
8. 1971-1980	4	0.9	5	1.2	9	1.1
9. 1981-1990	7	1.6	7	1.7	14	1.7
Total	427	100.0	402	100.0	829	100.0

[a]The relationship between year of birth and the decision to regenerate **was not statistically significant** at α=0.05.

Table 2. Number and percentage of regenerators and non-regenerators by type of ownership of NIPF landowners who harvested timber between 1994 and 1998.[a]

Type of Ownership	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Sole ownership	144	33.7	153	38.1	297	35.8
2. Co-owner with spouse	178	41.7	166	41.3	344	41.5
3. Co-owner with other family members	86	20.1	67	16.7	153	18.4
4. Co-owner with non-family individuals	0	0.0	2	0.5	2	0.2
5. Partnership	6	1.4	1	0.2	7	0.8
6. Corporation	1	0.2	2	0.5	3	0.4
7. Estate	6	1.4	10	2.5	16	1.9
8. Trust	5	1.2	0	0.0	5	0.6
9. Other	1	0.2	0	0.0	1	0.1
10. Refused	0	0.0	1	0.2	1	0.1
Total	427	100.0	402	100.0	829	100.0

[a]The relationship between type of ownership and the decision to regenerate **was not statistically significant** at α=0.05.

Table 3. Number and percentage of regenerators and non-regenerators by type(s) of harvest from January 1, 1994 through December 31, 1998.

Type of Harvest		Regenerators		Non-Regenerators		Total	
		No.	%	No.	%	No.	%
1. Final Cut[b]	Yes	427	100	402	100	829	100
	No	0	0	0	0	0	0
2. Partial Cut[b]	Yes	70	16.4	58	14.4	128	15.4
	No	357	83.6	344	85.6	701	84.6
3. Thinning[a]	Yes	80	18.7	35	8.7	115	13.9
	No	347	81.3	367	91.3	714	86.1
4. Salvage[a]	Yes	44	10.3	24	6.0	68	8.2
	No	383	87.7	378	94.0	761	91.8
5. No other method[b]	Yes	298	69.8	295	73.4	593	71.5
	No	129	30.2	107	26.6	236	28.5
6. Don't know/ refused[b]	Yes	124	29.0	105	26.1	229	27.6
	No	303	71.0	297	73.9	600	72.4

[a]The relationship between this type of harvest and the decision to regenerate **was statistically significant** at α=0.05.
[b]The relationship between this type of harvest and the decision to regenerate **was not statistically significant** at α=0.05.

Table 4. Number and percentage of regenerators and non-regenerators by year of most recent final cut of NIPF landowners who harvested timber between 1994 and 1998.[a]

Year of Recent Final Cut	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. 1994	43	10.1	63	15.7	106	12.8
2. 1995	46	10.8	51	12.7	97	11.7
3. 1996	59	13.8	62	15.4	121	14.6
4. 1997	80	18.7	80	19.9	160	19.3
5. 1998	148	34.7	111	27.6	259	31.2
6. Not sure but from 1994 to 1998	51	11.9	35	8.7	86	10.4
TOTAL	427	100.0	402	100.0	829	100.0

[a]The relationship between year of most recent final cut and the decision to regenerate **was statistically significant** at α=0.05.

Table 5. Provisions by regenerators to reforest the harvest area with pine.

Provision	Yes		No		Total	
	No.	%	No.	%	No.	%
1. Planted pine seedlings	394	92.3	33	7.7	427	100
2. Dispersed pine seed	21	4.9	406	95.1	427	100
3. Left pine trees for a seed source	70	16.4	357	83.6	427	100
4. Other provisions	13	3.0	414	97.0	427	100
5. Don't know what provisions	4	0.9	423	99.1	427	100
6. Refused	120	28.1	307	71.9	427	100

Table 6. Activities by regenerators before reforestation.

Activity	Yes		No		Total	
	No.	%	No.	%	No.	%
1. Prepared the ground using machinery	142	33.3	285	66.7	427	100
2. Burned the brush and/or debris	185	43.3	242	56.7	427	100
3. Anything else	17	4.0	410	96.0	427	100
Road and drain work	2	11.8				
Bedding and planting	6	35.3				
Bushhogged	3	17.6				
Windrowed	1	5.9				
Sheared	2	11.8				
Burned	2	11.8				
Spray	1	5.9				
4. Applied chemicals (herbicide)	70	16.4	357	83.6	427	100
5. No more	273	63.9	154	36.1	427	100
6. Nothing (no action)	88	20.6	339	79.4	427	100
7. Don't know	7	1.6	420	98.4	427	100
8. Refused	59	13.8	368	86.2	427	100

Table 7. Regenerators receiving public cost-sharing funds for reforestation and source of funds.

	Yes		No		Don't Know/Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%
Received cost-sharing	189	44.3	232	54.3	6	1.4	427	100
Source of funds								
1. Federal government	38	20.1						
2. State government	120	63.5						
3. Other	10	5.3						
4. Don't know	21	11.1						
Total	189	100						

Table 8. Reasons for reforesting and their importance to regenerators.

Reason for Reforesting	Importance											
	High		Moderate		Low		None		Don't Know/ Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Had revenues from timber sale to finance reforestation	201	49.2	66	15.5	43	10.1	100	23.4	8	1.9	427	100.0
2. Availability of cost-sharing from public agencies	119	27.9	68	15.9	42	9.8	194	45.4	4	0.9	427	100.0
3. Economic decision in anticipation of future profits from forest production	311	72.8	48	11.2	27	6.3	36	8.4	5	1.2	427	100.0
4. Advice of professional forester	234	54.8	64	15.0	24	5.6	102	23.9	3	0.7	427	100.0
5. Availability of tax credits and tax deductions	143	33.5	73	17.1	53	12.4	140	32.8	18	4.2	427	100.0
6. Felt the land should be kept in timber production	385	90.2	25	5.9	8	1.9	9	2.1	0	0.0	427	100.0
7. Conserve the natural environment and provide for future generations	385	90.2	26	6.1	1	0.2	13	3.0	1	0.1	427	100.0

Table 9. Reasons for not reforesting to pine and their importance to non-regenerators.

Reason for Not Reforesting	Importance											
	High		Moderate		Low		None		Don't Know/ Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Couldn't get government cost-sharing	89	22.1	24	6.0	13	3.2	268	66.7	8	2.0	402	100.0
2. Couldn't borrow money to reforest at a reasonable interest rate	43	10.7	20	5.0	18	4.5	316	78.6	5	1.2	402	100.0
3. Land is not suitable for pine	66	16.4	18	4.5	16	4.0	297	73.9	1	0.2	402	100.0
4. It takes too long to get the money back from a reforestation investment	55	13.7	39	9.7	19	4.7	273	67.9	16	4.0	402	100.0
5. Rate of return on reforestation is too low	50	12.4	31	7.7	20	5.0	282	70.1	19	4.7	402	100.0
6. Have not yet decided the future use of the land	88	21.9	40	10.0	10	2.5	252	62.7	12	3.0	402	100.0
7. Investment in reforestation is too risky	33	8.2	24	6.0	24	6.0	314	78.1	7	1.7	402	100.0
8. Had other uses for sale revenues	83	20.6	21	5.2	11	2.7	275	68.4	12	3.0	402	100.0
9. Reforestation costs too much	110	27.4	26	6.5	15	3.7	235	58.5	16	4.0	402	100.0
10. Too much red-tape in obtaining technical or cost-sharing assistance	89	22.1	22	5.5	11	2.7	256	63.7	24	6.0	402	100.0
11. Felt the site would reforest itself to pine naturally	128	31.8	60	14.9	39	9.7	165	41.0	10	2.5	402	100.0
12. Logging left site in such poor condition that it made reforestation with pine difficult	59	14.7	37	9.2	28	7.0	269	66.9	9	2.2	402	100.0
13. Wanted to grow hardwood on the tract	23	5.7	19	4.7	14	3.5	336	83.6	10	2.5	402	100.0
14. Adequate stocking of pine after harvest	58	14.4	32	8.0	33	8.2	258	64.2	21	5.2	402	100.0
15. Didn't have information on reforestation options	99	24.6	26	6.5	32	8.0	236	58.7	9	2.2	402	100.0
16. Other reasons	157	39.1	7	1.7	6	1.5	0	0.0	5	1.2	402	100.0

Table 10. Number and percentage of non-regenerators getting advice or assistance about reforesting from a professional forester and the most useful source of advice.

	Yes		No		Don't Know/Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%
Get advice/assistance?	99	24.6	301	74.9	2	0.5	402	100
Most useful source:								
1. A consulting forester	40	40.4						
2. An industry forester	6	6.1						
3. A state forestry commission forester	23	23.2						
4. An extension forester	7	7.1						
5. Other	14	14.1						
6. Don't know/ remember	9	9.1						
TOTAL	99	100						

Table 11. Averages of the lowest "acceptable" rate of interest on various investments of NIPF landowners who harvested timber between 1994 and 1998.

Investment	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. A bank savings account[b]	292	5.42	225	5.54	517	5.48
2. A certificate of deposit[b]	284	6.44	239	6.45	523	6.36
3. Money invested in stocks, bonds and mutual funds[b]	210	10.60	136	10.99	346	10.80
4. A timberland investment lasting 5 years[a]	152	8.91	98	7.60	250	8.25
5. A timberland investment lasting 15 years[b]	162	11.36	88	11.06	250	11.21
6. A timberland investment lasting 25 years[b]	148	12.74	72	12.80	220	12.77

[a]The differences in the interest rate between regenerators and non-regenerators **were statistically significant** at α=0.05.

[b]The differences in the interest rate between regenerators and non-regenerators **were not statistically significant** at α=0.05.

Table 12a. Number and percentage of regenerators and non-regenerators who consider pine plantation investment more risky than other potential investments.[a]

More Risky?	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Yes	68	15.9	80	19.9	148	17.85
2. No	339	79.4	281	69.9	620	74.79
3. Don't know/not sure	20	4.7	40	10.0	60	7.24
4. Refused	0	0.0	1	0.2	1	0.001
Total	427	100.0	402	100.0	829	100.0

[a]The relationship between landowners' response and the decision to regenerate **was statistically significant** at α=0.05.

Table 12b. Number and percentage of regenerators and non-regenerators who expect a higher interest rate because pine plantation investments are more risky.[a]

Higher Interest Rate?	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Yes	41	60.3	57	71.3	98	66.22
2. No	17	25.0	16	20.0	33	22.30
3. Don't know/not sure	10	14.7	7	8.8	17	11.48
Total	68	100.0	80	100.0	148	100.0

[a]The relationship between landowners' response and the decision to regenerate **was not statistically significant** at α=0.05.

Table 12c. Expectations of additional percentage points among regenerators and non-regenerators who consider pine planation investments more risky.[a]

Additional Percentage Points	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. 1.0	1	2.4	0	0.0	1	1.0
2. 2.0	7	17.1	12	21.1	19	19.4
3. 3.0	7	17.1	9	15.8	16	16.3
4. 4.0	3	7.3	2	3.5	5	5.10
5. 5.0	7	17.1	8	14.0	15	15.3
6. 6.0	1	2.4	0	0.0	1	1.0
7. 7.0	1	2.4	0	0.0	1	1.0
8. 10.0	5	12.2	1	1.8	6	6.1
9. 15.0	0	0.0	1	1.8	1	1.0
10. 20.0	0	0.0	1	1.8	1	1.0
11. 24.0	0	0.0	1	1.8	1	1.0
12. 25.0	0	0.0	1	1.8	1	1.0
13. 26.0	1	2.4	0	0.0	1	1.0
14. Over 26	2	4.9	0	0.0	2	2.0
15. Don't know	6	14.6	21	36.8	27	27.6
Total	41	100.0	57	100.0	98	100.0

[a]The relationship between additional percentage points and the decision to regenerate **was not statistically significant** at α=0.05.

Table 13a. Suppose the State of Mississippi would loan you money at a competitive rate of interest (e.g. 7.0-7.5%), and you would not repay the loan until the trees are harvested, and you had to put up the reforested land as collateral for the loan; would you be interested in borrowing money to pay the total cost of reforesting the tract, assuming it would be profitable in the long term?[a]

Level of Interest	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Yes	157	36.8	113	28.1	270	32.6
2. No	239	56.0	243	60.4	482	58.1
3. Don't know/not sure	31	7.3	43	10.7	74	8.9
4. Refused	0	0.0	3	0.7	3	0.4
Total	427	100.0	402	100.0	829	100.0

[a]The relationship between landowners' level of interest and the decision to regenerate **was statistically significant** at α=0.05.

Table 13b. Why would you not be interested in borrowing such money?[a]

Reason	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Don't want to borrow money or to be in debt	51	21.3	43	17.7	94	19.5
2. Don't want to use land as collateral	41	17.1	67	27.6	108	22.4
3. Have own money/don't need it	36	15.0	15	6.2	51	10.6
4. Don't want government intervention/don't trust government	26	10.8	18	7.4	44	9.1
5. Old age	21	8.8	33	13.6	54	11.2
6. Land is already reforested	10	4.2	2	0.8	12	2.5
7. Long investment/risky	9	3.8	11	4.5	20	4.1
8. Want sole control over property	8	3.3	3	1.2	11	2.3
9. Not profitable/other investments	5	2.1	6	2.5	11	2.3
10. High interest rate/costly	4	1.7	7	2.9	11	2.3
11. Land is unsuitable for reforestation	2	0.8	5	2.1	7	1.4
12. Pasture	0	0.0	9	3.7	9	1.9
13. Refused	27	11.3	24	9.9	51	10.6
Total	240	100.0	243	100.0	483	100.0

[a]The relationship between landowners' reasons for not borrowing money and the decision to regenerate **was statistically significant** at α=0.05.

Table 13c. Why are you NOT sure if you would borrow such money?[a]

Reason	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Need more information/ time to think	6	20.7	14	33.3	20	28.2
2. Don't need to	5	17.2	0	0.0	5	7.0
3. High interest rate/risky	3	10.3	1	2.4	4	5.6
4. Age	3	10.3	2	4.8	5	7.0
5. Don't want to be in debt	1	3.4	1	2.4	2	2.8
6. Don't want to put up land for collateral	1	3.4	5	11.9	6	8.4
7. Don't trust the government	1	3.4	1	2.4	2	2.8
8. Don't know/not interested/ not sure	9	31.0	18	42.9	27	38.0
Total	29	100.0	42	100.0	71	100.0

[a]The relationship between landowners' reasons for not borrowing money and the decision to regenerate **was statistically significant** at α=0.05.

Table 14a. Would you be interested in receiving the original reforestation loan and an additional loan of $25 per acre per year for ten years, if additional funds could be used for anything you choose?[a]

Response	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Yes	183	42.9	146	36.3	329	39.7
2. No	196	45.9	210	52.2	406	49.0
3. Don't know/not sure	48	11.2	44	10.9	92	11.1
4. Refused	0	0.0	2	0.5	2	0.2
Total	427	100.0	402	100.0	829	100.0

[a]The relationship between landowners' reasons for not borrowing money and the decision to regenerate **was not statistically significant** at α=0.05.

Table 14b. Why would you NOT be interested in such a deal?[a]

Reason	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Don't want to borrow money or to be in debt	47	24.6	41	20.8	88	22.7
2. Don't want to use land as collateral	28	14.7	49	24.9	77	19.8
3. Don't want government intervention/don't trust government	23	12.0	11	5.6	34	8.8
4. Have own money/don't need it	23	12.0	11	5.6	34	8.8
5. Old age/health reasons	14	7.3	29	14.7	43	11.1
6. Want sole control over property	11	5.8	4	2.0	15	3.9
7. Long investment/risky	10	5.2	4	2.0	14	3.6
8. Land is already reforested	8	4.2	2	1.0	10	2.6
9. High interest rate/don't want to pay interest	5	2.6	5	2.5	10	2.6
10. Other investments/ alternatives	5	2.6	5	2.5	10	2.6
11. Pasture	0	0.0	9	4.6	9	2.3
12. Need more information	0	0.0	2	1.0	2	0.5
13. Don't know/not sure	16	8.4	23	11.7	39	10.0
14. Refused	1	0.5	2	1.0	3	0.8
Total	191	100.0	197	100.0	388	100.0

[a]The relationship between landowners' reason and the decision to regenerate **was statistically significant** at α=0.05.

Table 14c. Why are you NOT SURE if you would be interested in such a deal?[a]

Reason	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Need more information/time to think	14	29.8	16	38.1	30	33.7
2. Don't want to borrow money or to be in debt	5	10.6	1	2.4	6	6.7
3. Age/health reasons	5	10.6	1	2.4	6	6.7
4. Don't want to use land as collateral	2	4.3	3	7.1	5	5.6
5. Don't need it	2	4.3	2	4.8	4	4.5
6. Land is already reforested	1	2.1	0	0.0	1	1.1
7. High interest rate	0	0.0	1	2.4	1	1.1
8. Maybe/not sure/don't know	18	38.3	18	42.8	36	40.4
Total	47	100.0	42	100.0	89	100.0

[a]The relationship between landowners' reason and the decision to regenerate **was not statistically significant** at α=0.05.

Table 15. Regenerator and non-regenerator awareness of government incentive programs available to encourage reforestation.[a]

Program	Regenerators (n=427)				Non-Regenerators (n=402)				Total (n=829)			
	Yes		No		Yes.		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Conservation Reserve Program (CRP)	261	61.1	166	38.9	177	44.0	225	56.0	438	52.8	391	47.2
2. Forestry Incentives Program (FIP)	213	49.9	214	50.1	100	24.9	302	75.1	313	37.8	516	62.2
3. Mississippi Forest Resource Development Program (FRDP)	142	33.3	285	66.7	57	14.2	345	85.8	199	24.0	630	76.0
4. Federal Income Tax Incentives	153	35.8	274	64.2	53	13.2	349	86.8	206	24.8	623	75.2
5. MS Reforestation Tax Credit	168	39.3	259	60.7	57	14.2	345	85.8	225	27.1	604	72.9
6. None of these	83	19.4	344	80.6	125	31.2	277	68.9	208	25.1	621	74.9
7. Refused	35	8.2	392	91.8	13	3.2	389	96.8	48	5.8	816	98.4

[a]The relationship between landowners' awareness of each of the programs and the decision to regenerate **was statistically significant** at α=0.05.

Table 16. Do you participate in a landowner assistance program sponsored by forest industry?[a]

Response	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Yes	47	11.0	12	3.0	59	7.12
2. No	370	86.7	388	96.5	758	91.4
3. Don't know/not sure	10	2.3	1	0.2	11	1.3
4. Refused	0	0.0	1	0.2	1	0.001
Total	427	51.51	402	48.49	829	100.0

[a]The relationship between landowners' response and the decision to regenerate **was statistically significant** at α=0.05.

Table 17a. About how many educational programs have you attended in the last five years?[a]

No.	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1	27	17.6	10	20.8	37	18.4
2	23	15.0	12	25.0	35	17.4
3	30	19.6	10	20.8	40	19.9
4	15	9.8	4	8.3	19	9.4
5	11	7.2	2	4.2	13	6.5
6	7	4.6	2	4.2	9	4.5
7	2	1.3	2	4.2	4	2.0
8	9	5.9	0	0.0	9	4.5
9	1	0.7	0	0.0	1	0.5
10	12	7.8	1	2.1	13	6.5
12	2	1.3	0	0.0	2	1.0
15	3	2.0	1	2.1	4	2.0
Over 16	8	5.2	0	0.0	8	4.0
Don't know/not sure	3	2.0	4	8.3	7	3.5
Total	153	100.0	48	100.0	201	100.0

[a]The relationship between number of programs attended and the decision to regenerate **was statistically significant** at α=0.05.

Table 17b. Who sponsored or co-sponsored the educational programs that you attended?[a]

Sponsor	Regenerators (n=153)				Non-Regenerators (n=48)				Total (n=201)			
	Yes		No		Yes.		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Mississippi State University Extension Service	99	64.7	54	35.3	31	64.6	17	35.4	130	64.7	71	35.3
2. Mississippi Forestry Association	75	49.0	78	51.0	16	33.3	32	66.7	91	45.3	110	54.7
3. Local County Forestry Association	89	58.2	64	41.8	25	52.1	23	47.9	114	56.7	87	43.3
4. Mississippi Forestry Commission	46	30.1	107	69.9	11	22.9	37	77.1	57	28.4	144	71.6
5. USDA Forest Service	16	10.5	137	89.5	5	10.4	43	89.6	21	10.4	180	89.6
6. USDA Natural Resource Conservation Service	27	17.6	126	82.4	7	14.6	41	85.4	34	16.9	167	83.1
7. Soil and Water Conservation District	33	21.6	120	78.4	13	27.1	35	72.9	46	22.9	155	77.1
8. Forest Industry	27	17.6	126	82.4	8	16.7	40	83.3	35	17.4	166	82.6
9. Other	19	12.4	134	87.6	3	6.3	45	93.8	22	10.9	179	89.1
10. Don't know	7	4.6	146	95.4	5	10.4	43	89.6	12	6.0	189	94.0
11. Refused	45	29.4	108	70.6	9	18.8	39	81.3	54	26.9	147	73.1

[a]The relationship between program sponsorship and the decision to regenerate **was not statistically significant** at α=0.05.

Table 18. Sources of information on managing forest land and their importance to regenerators and non-regenerators.

Information Source	Regenerators (n=427)					Non-Regenerators (n=402)					Total (n=829)				
	H	M	L	N	DK	H	M	L	N	DK	H	M	L	N	DK
1. Meetings, short courses, workshops[b]	116 (27.2)	107 (25.1)	47 (11.0)	155 (36.3)	2 (0.4)	94 (23.4)	90 (22.4)	42 (10.4)	172 (42.8)	4 (1.0)	210 (25.3)	197 (23.8)	89 (10.7)	327 (39.4)	6 (0.8)
2. Field trips[a]	101 (23.7)	100 (23.4)	54 (12.6)	167 (39.1)	5 (1.2)	68 (16.9)	75 (18.7)	55 (13.7)	197 (49.0)	7 (1.7)	169 (20.4)	175 (21.1)	109 (13.1)	364 (43.9)	12 (1.4)
3. Books, bulletins, newsletters[a]	179 (41.9)	152 (35.6)	30 (7.0)	66 (15.5)	0 (0.0)	150 (37.3)	120 (29.9)	34 (8.5)	93 (23.1)	5 (1.2)	329 (39.7)	272 (32.8)	64 (7.7)	159 (19.2)	5 (0.6)
4. Media (newspapers, magazines, radio, television, etc.)[a]	113 (26.5)	154 (36.1)	66 (15.5)	93 (21.8)	0 (0.0)	93 (23.1)	111 (27.6)	72 (17.9)	119 (29.6)	7 (1.7)	206 (24.8)	265 (32.0)	138 (16.6)	212 (25.6)	8 (1.0)
5. Mississippi Forestry Commission[a]	217 (50.8)	109 (25.5)	36 (8.4)	57 (13.3)	8 (1.9)	137 (34.1)	88 (21.9)	36 (9.0)	127 (31.6)	14 (3.5)	354 (42.7)	197 (23.8)	72 (8.7)	184 (22.2)	22 (2.6)
6. Natural Resource Conservation Service[a]	129 (30.2)	100 (23.4)	45 (10.5)	121 (28.3)	32 (7.5)	115 (28.6)	69 (17.2)	34 (8.5)	153 (38.1)	31 (7.7)	244 (29.4)	169 (20.4)	79 (9.5)	274 (33.1)	63 (7.6)
7. Extension Service[a]	201 (47.1)	104 (24.4)	34 (8.0)	76 (17.8)	12 (2.8)	174 (43.3)	69 (17.2)	24 (6.0)	117 (29.1)	18 (4.5)	375 (45.2)	173 (20.9)	58 (7.0)	193 (23.3)	30 (3.6)
8. Organizations like forestry associations, etc.[a]	133 (31.1)	116 (27.2)	55 (12.0)	104 (24.4)	19 (4.4)	83 (20.6)	96 (23.9)	43 (10.7)	154 (38.3)	26 (6.5)	216 (26.1)	212 (25.6)	98 (11.8)	258 (31.1)	45 (5.4)
9. Other forest landowners[a]	177 (41.5)	128 (30.0)	41 (9.6)	73 (17.1)	8 (1.8)	140 (34.8)	99 (24.6)	43 (10.7)	109 (27.1)	11 (2.7)	317 (38.2)	227 (27.4)	84 (10.1)	182 (22.0)	19 (2.3)
10. Industry foresters[a]	145 (34.0)	106 (24.8)	40 (9.4)	114 (26.7)	22 (5.2)	90 (22.4)	89 (22.1)	44 (10.9)	164 (40.8)	15 (3.7)	235 (28.3)	195 (23.5)	84 (10.1)	278 (33.5)	37 (4.4)
11. Forestry consultants[a]	182 (42.6)	101 (23.7)	29 (6.8)	103 (24.1)	12 (2.8)	104 (25.9)	85 (21.1)	33 (8.2)	166 (41.3)	14 (3.5)	286 (34.5)	186 (22.4)	62 (7.5)	269 (32.4)	26 (3.1)
12. Others[a]	31 (7.3)	9 (2.1)	0 (0.0)	0 (0.0)	1 (0.2)	10 (2.5)	3 (0.7)	0 (0.0)	0 (0.0)	0 (0.0)	41 (75.9)	12 (22.2)	0 (0.0)	0 (0.0)	1 (1.9)

[a]The relationship between this particular information source and the decision to regenerate **was statistically significant** at α=0.05.
[b]The relationship between this particular information source and the decision to regenerate **was not statistically significant** at α=0.05.

Values in parentheses represent percent response.

H = High importance
M = Moderate importance
L = Low importance
N = No importance
DK = Don't know/not sure/refused

Table 19. Other sources of information on managing forest lands.[a]

Answer	Regenerators		Non-Regenerators		Total	
	No.	%	No.	%	No.	%
1. Foresters/consultants	10	25.0	0	0.0	10	18.9
2. Internet/computer	6	15.0	2	15.4	8	15.1
3. Publication/media	5	12.5	2	15.4	7	13.2
4. Friends	4	10.0	0	0.0	4	7.5
5. Organizations	4	10.0	3	23.1	7	13.2
6. Self/own	3	7.5	3	23.1	6	11.3
7. USDA - Forest Service	3	7.5	1	7.7	4	7.5
8. Other government agents	3	7.5	0	0.0	3	5.7
9. Loggers	1	2.5	2	15.4	2	5.7
10. Don't know	1	2.5	0	0.0	1	1.9
Total	40	100.0	13	100.0	53	100.0

[a]The relationship between landowners' response and the decision to regenerate **was statistically significant** at α=0.05.

FWRC

Forest and Wildlife Research Center
Mississippi State University
Box 9680
Mississippi State, MS 39762
http://www.cfr.msstate.edu

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability or veteran status.
kbrasher 04/01