

HOMEOWNERS' OPINIONS ON THE PRACTICE AND EFFECTS OF TOPPING TREES

by David D. Close¹, John W. Groninger², Jean C. Mangun³, and Paul L. Roth⁴

Abstract. Utility (involuntary) and voluntary tree topping continues to be a common practice despite the efforts of various anti-topping advertising campaigns. A survey questionnaire was conducted to gain insight into homeowner motivations and knowledge of the consequences of topping, whether topping is consumer or service driven, and whether sociodemographics are related to levels of satisfaction with topping. Results indicate that topping is viewed more favorably by less educated homeowners and is consumer driven. This study also revealed people do not understand the consequences of topping. Differences also were apparent between voluntary and involuntary topping with the latter group more likely to recognize the negative effects of topping on tree health. Future anti-topping, advertising campaign creators should use information from this study to direct their message toward the most appropriate audiences.

Key Words. Topping; homeowner opinion; community forestry; anti-topping campaigns; utility line clearance.

Since the beginning of the 20th century, professional arborists have recognized that topping negatively impacts tree health (Shigo 1983; Kaiser et al. 1986; Fazio 1998; ISA 2000). Most people who understand the negative impacts of topping believe this practice also detracts from the aesthetic beauty of trees. Despite the efforts of anti-topping advertising campaigns through the National Arbor Day Foundation, the USDA Forest Service, and the extension services of several universities, this detrimental practice continues to be a serious urban forestry management issue in the U.S. Midwest and the rest of the nation. In a street tree survey conducted in

southern Illinois, 28% of the 15 most frequently occurring tree species had been topped (Karlovič et al. 2000).

In communities lacking protective tree ordinances, topping often is associated with utility line clearance. Additional topping occurs when homeowners voluntarily subject their trees to topping for a wide variety of reasons including perceived safety and aesthetic benefits (Fazio and Krumpke 1999). Campaigns to lessen the impact of both practices have met with only limited success. Fazio and Krumpke (1999) working in the inland northwestern United States found ample anti-topping educational materials were available; however, it either did not reach those who needed it or the material did not convince people to stop topping their trees. They also recognized that a small number of tree service providers practicing topping misrepresented the tree care industry overall, based on tree service respondents. If anti-topping campaigns have been waged and professional arborists have recognized the negative effects of topping trees, why does the practice continue to be so prevalent? This study was conducted to determine whether homeowners' recognition of the negative impacts of topping, or their lack of recognition, can be explained on the basis of sociodemographic characteristics or the nature of their past experience with topping.

METHODS

Three south-central Illinois communities with populations ranging from 4,800 to 11,000 were selected for distribution of a self-administered survey questionnaire about tree topping. This study

did not attempt to select a randomized sample from the target population of homeowners with topped trees. A canvassing technique was used to identify previously topped trees on private property in the selected communities. Properties with utility- and non-utility-topped trees visible from public rights-of-way were included for potential respondent selection.

Surveys were distributed between July 1999 and January 2000 to all homeowners on all streets within city limits having topped trees on their property. One thousand nine hundred ninety surveys were distributed. The survey packet contained a letter explaining the project along with instructions on how to complete the survey and return it for inclusion in the study. Questionnaires were coded by community but were otherwise completely anonymous.

Survey questions were designed to gain insight into homeowner motivations and knowledge of the consequences of topping their trees, whether topping is consumer or service driven, and whether satisfaction with topping is related to level of educational attainment. Typical demographic questions were also included.

In addition to running descriptive statistics, contingency tables (crosstabs) were used to determine whether differences existed between respondent answers based on utility (involuntary) versus non-utility (voluntary) topping (SPSS, Inc. 1998). Pearson's Chi-square ($p < 0.05$) was used to detect significant differences among variables. In instances where significant differ-

ences were found, Cramér's ν measure of association determined the strength of the relationship between row and column variables in the contingency tables.

RESULTS AND DISCUSSION

Two hundred seventy-one surveys (13.6%) were completed and returned. Thirty-three percent ($n = 72$) of the respondents were classified as having trees topped by utilities, with the remainder classified as non-utility or voluntary toppers ($n = 146$). Respondents that did not reside at their present location at the time of topping were not included in the analysis ($n = 53$). Respondents were primarily older, moderately educated, working- to middle-class or retired, and 69% of residents have been at their current address for more than 10 years (Table 1). Ninety-two percent of respondents indicated they owned their house.

Fifty-one percent of respondents stated that a local, private, tree service performed the topping. Within the study region of southern Illinois, there are only three Certified Arborists. These numbers imply that while local individuals are providing service, few are formally trained.

Homeowners whose trees had been topped for utility reasons differed from homeowners whose trees had been topped for non-utility reasons in the factor that influenced their final decision to have their trees topped. The majority of those who experienced utility topping claimed they were excluded from the decision to have their trees topped. Homeowners who voluntarily had

Table 1. Sociodemographic characteristics of respondents ($n = 271$).

Age	Highest level of education	Annual household income (US\$)	Estimated property value (US\$)	Length of time at current residence (years)
<29 (3%)	<High school (5%)	<20,000 (21%)	<25,000 (3%)	<5 (20%)
30-39 (11%)	High school/GED (48%)	20,001-40,000 (21%)	25,000-49,999 (21%)	5-9.99 (12%)
40-49 (19%)	Associate's (9%)	40,001-60,000 (22%)	50,000-74,999 (27%)	10-14.99 (8%)
50-59 (13%)	Bachelor's (16%)	>60,000 (17%)	75,000-99,999 (18%)	15-19.99 (5%)
>60 (44%)	Master's (9%)	No response (19%)	>100,000 (7%)	20-24.99 (8%)
No response (10%)	PhD (4%)		No response (24%)	>25 (36%)
	No response (9%)			No response (11%)

their trees topped claimed they made the decision completely of their own accord (Figure 1). These results suggest that topping was not driven by the service providers but rather by homeowners looking for individuals willing to perform the job in situations where utility line conflict was not an issue. The Pearson Chi-square was 159.87 with a $p < 0.05$ and the Cramér's ν measure of association was 0.86 with a $p < 0.05$ where $n = 214$.

The majority of respondents with trees topped by utilities (55%) believed topping would reduce the lifespan of a tree, while only 17% of homeowners who voluntarily had their trees topped thought they had shortened the life of their trees (Figure 2). Fifty-one percent of homeowners who voluntarily had their trees topped believed topping actually would enhance the lifespan of a tree. In contrast, only 19.4% of those having utility topped trees thought tree longevity would be enhanced. The Pearson Chi-square was 36.98 with a $p < 0.05$ and the Cramér's ν measure of association was 0.43 with a $p < 0.05$ where $n = 196$. These results suggest homeowners with trees topped by utilities had a better understanding of the negative aspects of topping than homeowners who voluntarily had their trees topped. Another possible explanation for this discrepancy may be that people who experience utility topping are disgruntled either with the results of the topping or their lack of input in the decision to top.

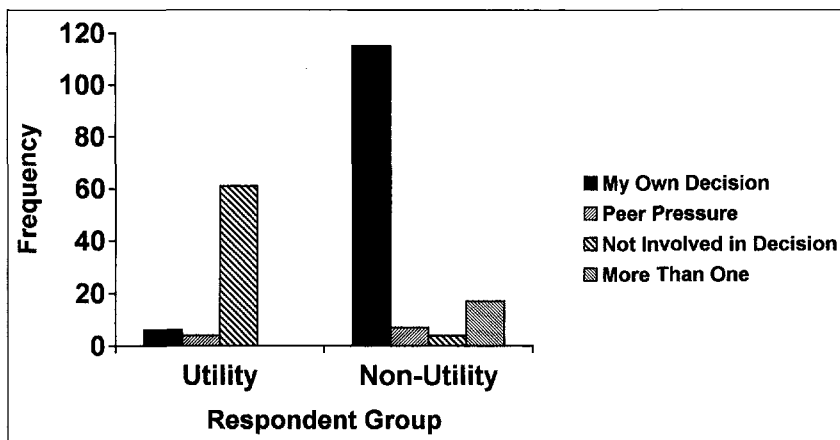


Figure 1. Respondents were asked to select the factor that influenced their decision to have their tree topped. Results show that a difference in response exists between the two respondent groups. In fact, no utility respondent marked "more than one" as a response.

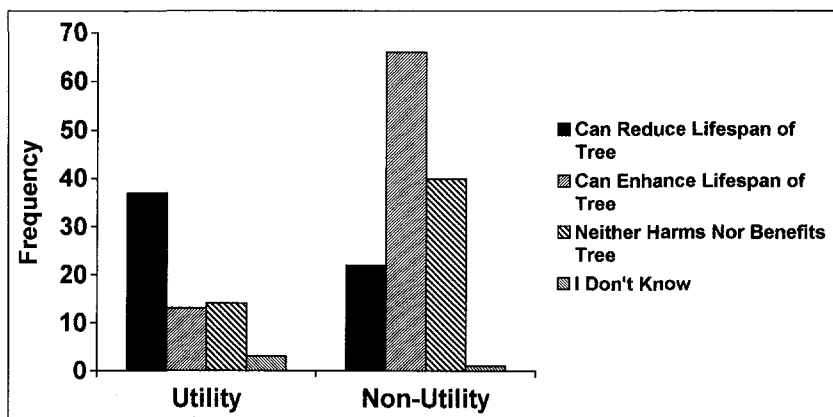


Figure 2. Respondents were asked which statement is most true about topping. This illustrates the point that in general, homeowners do not understand the consequences of topping a tree.

Homeowner satisfaction with topping also was related to utility versus non-utility status. More than 65% of homeowners with utility topped trees were dissatisfied, while only 14.5% were satisfied with the work. Only 15% of voluntary top-pers were dissatisfied, while 67% were satisfied with the results of topping (Figure 3). The Pearson Chi-square

value was 61.54 with a $p < 0.05$; the Cramér's ν measure of association was 0.55 with a $p < 0.05$, indicating a significant relationship with a strong correlation between voluntary versus involuntary topping and opinions regarding the practice of topping, as was the case with tree health. The dissatisfaction of people who had trees topped due to utility line conflicts may have been influenced by the radical or uneven nature of utility topping, or it may reflect differences in opinion in tree aesthetics among voluntary and involuntary toppers.

Educational attainment may have played a role in opinions toward topping. Eighty-one percent of homeowners having utility topping had more than a high-school education, whereas only 63% of homeowners classified as having voluntary topping had more than a high-school education. Results suggest that respondents satisfied with the results of topping had an overall lower level of education than those not satisfied or neutral, suggesting that differences in views toward topping may have a demographic basis (Figure 4).

Sixty-nine percent of homeowners with utility-topped (involuntary) trees reported utility-line conflict was the primary reason their trees had been topped. However, 71% of homeowners who voluntarily had their trees topped reported multiple reasons for requesting this practice. Some of the reasons voluntary toppers gave included "thought the tree was too large," "wanted to improve the appearance of the tree," and "wanted to reduce the number of large branches." Sixteen percent of the homeowners who voluntarily had their trees topped reported

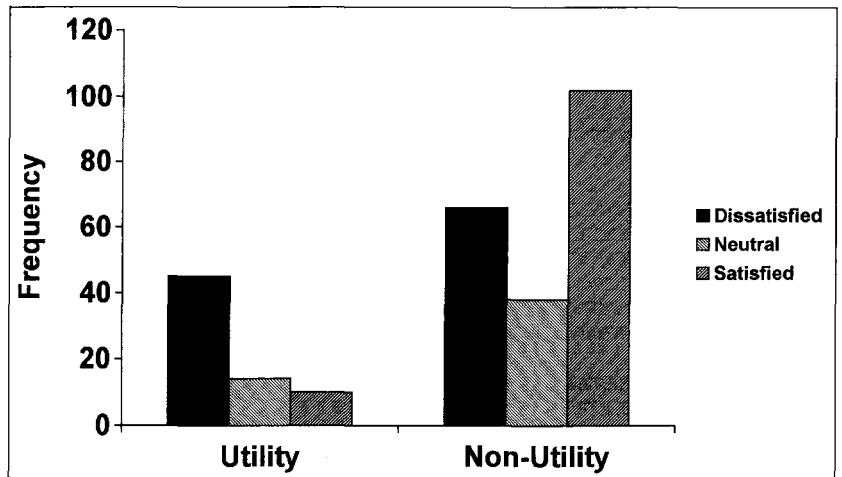


Figure 3. Respondents were asked to rate their level of satisfaction with the results of topping. These results clearly show that homeowners with utility-topped trees were dissatisfied with topping, while homeowners who allowed their trees to be topped were generally satisfied with the results.

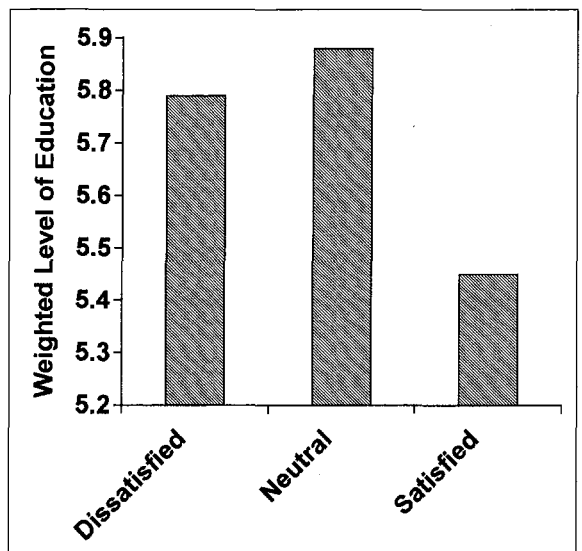


Figure 4. Crosstab analysis of level of education with level of satisfaction with the results of topping. Weights: 2 < high school, 4 = high school/GED, 6 = associate's, 8 = bachelor's, 10 = master's, 13 = PhD. This figure illustrates that people satisfied with topping had an overall lower level of formal education than those that were dissatisfied or neutral with the results.

that it was solely for aesthetic reasons. The Pearson Chi-square value was 77.82 with a $p < 0.05$; the Cramér's ν measure of association was 0.63 with a $p < 0.05$.

CONCLUSIONS

Based on the results of this study, voluntary topping in the absence of pressure from tree care providers appears to be occurring, suggesting that efforts to reduce the incidence of topping should focus on homeowner education rather than regulation of tree service providers. Evidently, lower education levels are correlated with people's willingness to have their trees topped. It would seem that lower educational levels among the residents in this study could be a factor in the frequency of topping in small Midwestern towns. The idea that people are topping because their trees are too large, or because they want to change the appearance of their trees, suggests that if people were aware of appropriately sized trees to plant, instances of topping might be reduced or eliminated (Appleton et al. 1997). Better understanding among homeowners in small communities about how topping affects their trees both biologically and aesthetically also might help reduce the incidence of topping. The stability of homeownership in these communities suggests that homeowner education programs related to tree species selection for planting may ultimately translate to fewer instances of topping.

Topping appears to be more attractive to homeowners with lower levels of educational attainment. The demographics of respondents in this study are consistent with the findings of Fazio and Krumpke (1999), who concluded that topping was more common among older, less educated, and less affluent segments of society. If this is the case, then advertising campaigns should be directed toward individuals who are more inclined to seek this service. In addition to audience-specific ad campaigns, education efforts should be directed at young homebuyers

and/or homeowners inheriting topped trees to prevent them from establishing the mindset that topping is an appropriate and beneficial tree care practice.

The results of this study suggest homeowners who experience utility topping seem to better understand the negative consequences of topping. The radical nature of utility topping may have provided an educational opportunity for homeowners. However, this finding could be an artifact of the low response rate. Unsolicited surveys with no followup mailings may receive responses only from people with strong feelings about the issue in question. Future research will be required to determine the extent of non-response bias.

Another aspect of topping that merits further investigation would be to determine how small, rural towns differ from larger metropolitan areas with regard to tree management strategies. In many of the small, rural communities of the Midwest, the lack of proper tree care and management is obvious in the number of topped trees and severity of crown removal. Most of these communities lack ordinances that prohibit both utility and voluntary topping. The abundance of aboveground wires combined with fewer restrictions may create more opportunities for utility topping. It would be interesting to compare responses from small, rural communities with those of suburban and urban respondents. Demographics and tree care knowledge may differ not only between homeowner respondent groups but may also differ among tree service providers in rural versus metropolitan settings.

The results of this study suggest that the linkage between anti-topping education programs and homeowners in small, Midwestern communities has been weak thus far. Either these homeowners have not been sufficiently exposed to anti-topping programs or the message does not resonate with all groups. Future anti-topping campaigns should be targeted toward individuals who are most likely to request this practice. These ad campaigns should be in a format that more effectively challenges currently held beliefs regarding this practice.

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¹*Community Forestry Volunteer Coordinator*

^{2,3}*Assistant Professor*

⁴*Professor*

Department of Forestry—4411

Southern Illinois University

Carbondale IL, U.S. 62901-4411

**Corresponding author*

Résumé. L'écimage des arbres, fait de façon volontaire ou involontaire, continue d'être une pratique courante malgré les efforts de plusieurs campagnes médiatiques contre l'écimage. Un questionnaire d'enquête a été mis au point pour recueillir de l'information sur les motivations du propriétaire et ses connaissances quant aux conséquences de l'écimage, de même que pour savoir si l'écimage provenait d'une

demande du consommateur ou s'il était le fait du donneur de services, et enfin pour connaître si des éléments sociodémographiques pouvaient être reliés au degré d'intérêt envers l'écimage. Les résultats ont indiqué que l'écimage était perçu plus favorablement par les propriétaires moins éduqués et qu'il était le fait d'une demande de la part du consommateur. Cette étude a aussi révélée que les gens ne comprenaient pas les conséquences de l'écimage. Des différences étaient aussi apparentes entre l'écimage volontaire et involontaire, les gens du dernier groupe reconnaissant plus facilement les effets négatifs de l'écimage sur la santé des arbres. Les concepteurs de campagnes publicitaires futures contre l'écimage devraient utiliser l'information de cette étude pour diriger directement leur message vers les auditoires les plus appropriés.

Zusammenfassung. Zwangsweises und freiwilliges Köpfen von Bäumen bleibt weiterhin Praxis, trotz der Bemühungen verschiedener Gegenkampagnen. Es wurde eine Umfrage veranlasst, um Einsichten über die Motivation der Hauseigner sowie deren Fachkenntnis über die Konsequenzen des Köpfens, welche Auftragsstellung vorrangig ist und ob soziodemographische Faktoren bei der Akzeptanz des Köpfens relevant sind. Diese Studie klärt auch, dass die Menschen die Konsequenzen des Köpfens nicht verstehen. Es wurden Unterschiede deutlich zwischen zwangsweisem und freiwilligen Köpfen und dass die erste Gruppe eher die negativen Aspekte des Köpfens in bezug auf die Baumgesundheit nachvollziehen konnte. Zukünftige Gegenkampagnen können dieses Material nutzen, um ihre Kampagnen zielgruppenorientierter durchzuführen.

Resumen. A pesar de las campañas publicitarias, el desmoche continúa como una práctica voluntaria e involuntaria (líneas de servicios) en contra de los árboles. Se condujo un estudio con cuestionarios para conocer las motivaciones y el conocimiento de los propietarios acerca de las consecuencias del desmoche, bien sea que éste sea realizado por el mismo o por una empresa de servicio. Los resultados indican que el desmoche es visto más favorablemente por la gente con menos educación. Este estudio también muestra que la gente no conoce las consecuencias del desmoche. Las diferencias también fueron aparentes entre el desmoche voluntario e involuntario, con el último grupo más propenso a reconocer los efectos negativos del desmoche en la salud del árbol. Los creadores de futuras campañas anti-desmoche deberán usar esta información para dirigir sus mensajes hacia las audiencias más apropiadas.