

The six counties (Pasco, Pinellas, Hillsborough, Manatee, Sarasota, and Charlotte) Cooperative Extension Service faculties currently are discussing long- and short-term strategic plans and FYN program goals. Among topics being discussed are research needs, funding, integration of FYN into the statewide IFAS program, development of educational materials, and roles and responsibilities of program coordinators and agents. Standardization of basic program promotional and educational materials would help ensure a lasting, recognized and successful state-wide program.

With statewide focus to the program and with adequate funding, Florida Yards & Neighborhoods has the potential for enormous impact upon Florida's water resources, wildlife habitat including shorelines, and energy conservation. Furthermore, the program can be adapted and expanded from Florida's coastal communities to residents who live along lakes and rivers. Florida Yards & Neighborhoods can be a state inter-agency partnership, with an IFAS inter-disciplinary program at its core, utilizing both professionals and volunteers to address the major water, energy and wildlife issues confronting our growing Florida urban population.

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"MY YARD DOESN'T GROW TRASH"

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A yard waste reduction project was conducted in the City of DeLand from December 1993 through May 1994 with cooperation between the City and its waste management contractor, Industrial Waste Service, Inc. A section of the city consisting of about 180 residences was selected for its history of heavy contribution to the yard waste stream.

The specific objectives of the project were: (1) to test the effectiveness of an educational campaign designed to greatly reduce the amount of yard waste placed at curbside and (2) to test the feasibility of curbside grinding of yard waste materials as a means of reducing energy consumed in hauling, processing, and disposing of such materials. These objectives were to contribute to the goal of reducing resources spent on handling yard wastes by significantly reducing the amount of plant material hauled from residential landscapes.

Project Activities and Results

Surveys. At the beginning and end of the project, we conducted a direct-mail survey of personal attitudes about yard waste management. Business reply envelopes were included with the questionnaires. Results are presented in Tables 1 and 2. Out of 157 surveys distributed, 123 residents responded to the initial survey and 62 to the second. The 78% return rate for the initial survey indicated a significant level of citizen awareness in the project area. We sent follow-up reminders for the initial survey but did not send follow-up reminders on the final survey due to project completion time constraints. Lack of follow-up was the primary reason for the lower response rate in the final survey. The 78% return rate for the initial survey was considered excellent, and the 39% return rate for the final survey was considered acceptable for a mail survey.

The following conclusions were drawn from analysis of the response data.

- The population was quite concerned with local waste management issues.
- The majority were interested in learning ways to use their yard debris on-site to decrease their contribution to the waste stream.
- The population preferred to get their information by reading (e.g., direct mail, utility bill inserts, newspaper articles).
- People were unlikely to go to meetings to learn about yard trash handling options but might visit a demonstration site.
- About a third of the people were already keeping over three-quarters of their yard wastes on-site, but another third were discarding over three-quarters of their yard debris.
- Respondents indicated that they discarded a major portion of their tree branches and shrubbery trimmings. While over half indicated they did not discard grass clippings, almost a quarter indicated that they regularly did discard them.

The final survey asked for responses to four questions (Table 2). As a result of the project, 37% of the respondents said they had decreased the amount of yard waste that they placed at the curb, a third of those claiming great decreases in amounts. Of the 61% that noted no effect of the project on their behavior, there were several notes that indicated those respondents were people who generally did not generate yard waste material. About half of the respondents noted that they had put material out for curbside shredding at least once during the 6 months of the project. About one third indicated they would be very likely to use curbside shredding, another third would be likely or somewhat likely, and the other third would be unlikely to use it.

Written comments volunteered on the survey forms gave additional insights into the attitudes of residents to the project. The comments showed the normal range of human beliefs and opinions but were generally favorable and contained good suggestions for improvement. Several noted that the shredded material needed to be finer for them to consid-

Table 1. Results of initial questionnaire sent in December 1993. Numbers presented are the number of residents who checked that choice.

1. Do you have a yard or home garden?				
Yes	117	No	5	
2. How likely would you be to throw away less yard trash if you were shown the benefits of using yard trash in your home lawn and garden?				
very likely			38	
likely			26	
somewhat likely			29	
not likely			20	
3. How likely would you be to use your own shrubbery and tree trimmings for mulching or composting if they were shredded for you at curbside?				
very likely			61	
likely			25	
somewhat likely			11	
not likely			16	
4. What portion of your yard trash do you (or your lawn service) discard from your landscape over the course of a year?				
	less than 1/4	1/4 to 1/2	1/2 to 3/4	more than 3/4
tree branches	29	14	14	56
shrubby trimmings	33	18	14	47
tree leaves and needles	45	27	12	31
grass clippings	64	13	9	26
5. How often do you place yard trash at the curb for disposal?				
less than about 10 times a year (less than once per month)			12	
about 10 to 25 times a year (once or twice a month)			35	
about 25 or 40 times a year (two to three times a month)			19	
almost every week of the year (more than 40 times a year)			21	
6. How likely are you to use the following sources of information to learn about yard trash handling methods?				
	very likely	likely	somewhat likely	not likely
utility billing inserts	37	24	26	23
special mailings	34	35	23	18
newspaper articles	29	37	31	14
evening neighborhood meetings	0	10	17	73
daytime neighborhood meetings	1	8	11	80
demonstrations by Extension personnel	15	25	20	43
7. How concerned are you about local waste management issues ?				
very concerned	47			
concerned	39			
somewhat concerned	26			
not concerned	4			

er it an acceptable mulching material. Some had so little material set out that it was impractical to pass it through the grinder.

Newsletters and Publicity. A newsletter was mailed to residents in the project area on four occasions. The newsletter was designed to keep residents informed about the project and to educate them about the problems of yard waste. Emphasis was placed on the effects the present system has on yard waste generation and handling. On-site utilization instead of curbside disposal was encouraged. Residents were urged to use on-site all grass and leaf materials as well as most if not all woody materials. The motto, "My Yard Doesn't Grow Trash" was chosen for the project.

Shortly after the project began, the local newspaper endorsed the idea and encouraged participation. Two articles about the project appeared in local newspapers, one in December and one in April. Several residents made it a point to be out in their yard when the shredding crew came by and were anxious to discuss the project with the crew. We felt that interested residents were adequately informed about this limited project, but a more intensive program of mailings, newspaper publicity, utility bill inserts, etc. would be needed if a larger portion of a community were the target of a similar ed-

ucational effort. We feel that the high level of interest was due in part to the residents feeling they were participating in a research project.

A small reception was held in early July at the County Extension office to present the findings to interested participants. Results were presented in a poster display that will be used to promote yard waste reduction at appropriate meetings and fairs.

Curbside Shredding of Woody Yard Wastes. This project tested a curbside-chipping alternative to woody waste disposal. Since shrubbery and tree trimmings are difficult for the typical homeowner to utilize, it was felt that shredding the material at curbside would reduce the brushy and woody material to small pieces that the resident could then use as a mulch or as a component in compost piles. In the mailings, residents were provided several feet of flagging tape. They were instructed to tie a one foot length of the tape to a branch if they wanted the material shredded and left at curbside.

The City of DeLand provided an 18-horsepower shredder used for utility right-of-way maintenance. A large, open-ended sock-like device made from shade cloth was fit over the shredder chute to direct the shredded material back into residents' trash cans or into a pile on the ground. The make-shift

Table 2. Results of the second questionnaire. Data presented are the number of residents who checked that choice.

1. What effect has this project had on the amount of yard waste you place at the curb for disposal?	
Greatly decreased the amount	7
Decreased the amount	16
Had no effect	37
Increased the amount	1
2. How likely are you to use your own yard material as mulch or compost?	
Very likely	25
Likely	12
Somewhat likely	6
Not likely	18
3. How often did you leave your woody yard waste for curbside shredding?	
Never	28
1-2 times	18
3-4 times	11
5-6 times	4
4. How likely is it you would use curbside grinding of woody yard trash if that service were offered as a permanent service?	
Very likely	22
Likely	6
Somewhat likely	13
Not likely	20

device was somewhat inconvenient to use but served the purpose of the project. Several adaptations could readily be made to make the system more convenient for routine use. The shredder cut woody branches into pieces no bigger than three or four inches but pieces of shrubby branches six to eight inches long often were found in the shredded material. Some residents expected the material to be ground up finer, as might be found in purchased, screened mulch. However, most residents were content to have the material reduced to easily-manageable size rather than having it go to waste.

We had originally planned to offer the shredding service every week. However, during the first week of the project, it became apparent that the amount of woody material set out did not merit weekly service. Participants were immediately advised through the newsletter that shredding would be provided only on the last week of the month. They were encouraged to time shrubbery and tree trimming to coincide with the shredding service, which many apparently did, as evidenced by large piles of such material flagged for curbside shredding on the appointed days.

The total number of residences that requested shredding was about the same as the number that requested removal, 43 and 40, respectively (Table 3). However, three times as much woody material was shredded and remained on site as was hauled away. It seems that residents who were producing large volumes of woody debris were utilizing the curbside service more than those who were putting out small volumes of those materials.

General Observations on Yard Waste in the Project Area: 1. *Set-out rate for yard debris was low.* It was noted that on any given collection day, only a small percentage (e.g., 15%) of the homes had yard waste at the curb for collection. This was consistent with the survey data that showed 36% of the residents put out yard trash less than once per month, and another 30% estimated they put it out less than twice per month. The collection crew did a lot of riding around to provide a weekly service that relatively few were using. Many homes never had

Table 3. Results of brush and woody waste shredding-at-curb service.

Collection Date	Number of Residences Requesting Shredding	Number of Residences Requesting Removal	Cubic Yards of Shredded Material Produced ^a	Cubic Yards of Material Hauled Away ^a
17 Dec 93	6	9	1.3	0.8
28 Jan 94	5	11	2.7	1.1
28 Feb 94	15	3	4.1	0.2
25 March 94	7	3	5.8	1.7
29 April 94	6	8	3.5	0.8
27 May 94	4	6	0.8 ^b	1.4
Sums	43	40	18.2	6.0

^aVolume estimated assuming equivalent volume of three standard 32-gallon cans of yard trash produced one can of shredded material.

^bDoes not include one home which produced an entire truck load of shredded material (ca 15 cu yd). Had obviously hauled in material (not from that yard) on last day so project would grind material without cost.

any material out for collection. At the 15% set out rate, six residents are paying for the seventh resident to have yard debris hauled away on a weekly basis.

2. *Single rates provide disincentives.* Since waste collection rates are the same for all residents regardless of the amount set out (uniform monthly fee structure or standard tax assessment), there is no economic incentive for reduction in yard waste generated. The following three examples illustrate some of the situations that are encouraged by flat rates.

Example 1. A residence has nine bags of soil-laden leaves set out for disposal. Had the resident been charged by weight, the logic of sending topsoil to a landfill would have been questioned by the homeowner.

Example 2. Some residences had debris at the curb every collection time. Apparently there is a feeling of obligation to "contribute." ("If I don't put something out, I'm not getting my share of the yard waste fee.")

Example 3. There is a handful of small sticks at the curb for pick up. Obviously the resident did not consider the consequences of putting out an insignificant amount of material. The fact that a 16-ton truck with perhaps 5 tons of load has to stop so a worker can hop off and pick up a small rotten limb, an old potted plant, or a few gallons of raked tree leaves apparently does not register as being wasteful of energy and resources.

Discussion and Observations

The Educational Effort. Changing attitudes of a population generally takes considerable time and a variety of approaches. Our 6-month project was somewhat brief to accomplish major changes in attitudes about yard waste disposal. However, the responses on the surveys indicated there was increased awareness of the yard debris disposal problem, and a sizeable number of residents had reduced the quantity they set out for pick up. Such increased awareness was accomplished with four inexpensive newsletters whose main cost was postage. The woody waste shredding gave extra visibility because of its novelty and undoubtedly helped raise awareness of the waste problem.

We feel that a well orchestrated educational campaign conducted over an entire year could have major, lasting impact on the kinds and amounts of yard wastes placed at curbside. For example, a yard waste reduction campaign conducted in coordination with the city could use utility bill

inserts to reach all residents inexpensively. Articles prepared in advance to address the different debris problems of the various seasons could be assured a regular place in utility bill inserts. Newspaper articles and public service announcements for radio and TV could complement the effort. Special training in waste reduction for landscape maintenance service personnel could be a requirement for occupational licensing. Targeted efforts would be in addition to the continuing efforts of Cooperative Extension and other groups that promote sound environmental principles.

The Energy Saving Effort. An original premise of the project was that reducing the weight of material hauled would result in energy savings because less fuel would be consumed in collecting, hauling, and subsequently handling yard wastes. Cost of tipping fees and yard waste landfill space would also be saved. There would be other, less direct savings in reduced wear on streets and roads due to less weight in the packer trucks used in trash collection.

Analysis of the situation showed that by far the largest expenditure of energy (and cost of labor) in yard waste disposal is for the packer truck. Mileage of 18-ton packer trucks is estimated at between 5 and 7 miles per gallon (mpg), and their load capacity is about 9 tons. While reduction in the amount of yard waste collected means less weight being transported and processed, the associated energy saving is relatively small because more of the energy is being spent moving the truck than the load. Energy saved in processing less yard waste at the landfill or composting site would be proportional to the amount of material. However, the centralized nature of the processing facility makes its contribution to the overall energy budget of yard waste handling small in comparison to collection.

Much more significant savings could be realized from less frequent collection, e.g., every other week instead of every week, than from weight reduction. For example, if we assume the truck got 7 mpg on a weekly 500-mile route, fuel consumption would be about 140 gallons in two weekly runs (1000 miles/7 mpg). Then, assuming the truck got 5 mpg when it did the same route once per two weeks, fuel consumption would be about 100 gallons (500 miles/5 mpg), a fuel savings of about 30%. There would be other benefits of less frequent collection. Labor costs would be cut approximately in half. Additional time needed to load 2 weeks' worth of trash would be relatively small compared to the time spent traveling to and from the neighborhood and traversing the route. Additionally, less frequent collection would probably

have the effect of reducing the total amount of material set out. Increased time of ownership of the trash would likely encourage homeowners to seek alternatives to weekly curbside disposal. Given the innocuous nature of yard waste (compared to food wastes in garbage), less frequent collection should not cause major inconvenience of citizens.

Other Yard Waste Reduction Incentives. The current system of charging the same fee for yard waste collection to all households does not encourage waste reduction. Many places in the country have begun charging individuals by amount of material collected. Other cities have discontinued the service, and homeowners must contract privately with waste haulers if they wish to discard yard waste. Significant financial or convenience incentives generally increase the interest in yard waste reduction educational efforts.

Conclusions

- A. Relatively simple educational campaigns on yard waste reduction can be an effective means of reducing the quantities set out for collection.
- B. Curbside shredding of woody wastes and shrubbery trimmings would decrease the amount of that type of yard debris that entered the waste stream. A monthly offering of this service as an alternative to pick-up may present a minimum of logistical difficulties.
- C. Decreasing the frequency of yard debris collection will accomplish greater energy and cost savings than simply decreasing the amount of material collected.

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