

Arkansas River Ambassador Program

The Arkansas River Ambassador program was developed to effectively communicate accurate information to the general public. Through increased awareness, citizens may better understand the reason for implementing practices that reduce non-point source (NPS) pollutants from around their households. As a “trial by fire” program the designers were attempting to engage the public two ways; 1) with one-on-one communication exchange with local experts in the area of water quality and water management, 2) by surveying citizens regarding NPS issues. Survey cards were utilized to enable citizens to reflect about their life style, that impacts NPS pollutant contributions

The questions asked of the ambassadors and the results of the survey will become the basis of a data set. This database will provide information about areas of interest for the citizens and also indicates where the general understanding of issues is lacking. Issues that are not well understood by the public would be areas that local educators could focus additional attention on to increase the public’s awareness to the importance related to these topics. With an understanding of what areas the public needs more education, a more uniform approach would help to increase topic understanding with repetitive exposure from multiple avenues of education. As understanding of NPS topics improve within the public’s mind, watershed stewardship will increase, as individuals will better understand the impact that they have on their streams and rivers.

In addition to the information water quality transferred from the ambassador-public interaction, the public was made aware of local contacts who presented a knowledgeable attitude regarding local rivers and streams. Public contact with local and regional water quality experts from multiple agencies is important in increasing the awareness of the ongoing water quality assessment work on addressing water quality issues. Presentations of data will also illustrate to the public, water quality concerns are not just a seasonal topic. With increased exposure of area individuals with water quality expertise, and this project striving to provide assurance to the public that issues regarding the

Arkansas River are being addressed in an aggressive fashion so as to provide accurate information on the status of the Arkansas River. Also, the public was provided information regarding current monitoring activities and protective implementation measures to minimize pollutants entering the river system. A goal of the ambassadors was not to sensationalize the negative or positive aspects of the current river conditions, but rather provide to some of the public, factual information that would increase their understanding of the natural river system.

Methods and Data

The ambassadors consisted of 24 people from 12 different departments and agencies. These include workers:

- From Kansas Department of Health and Environmental (KDHE) -
 - Topeka's Science and Support Department
 - Wichita Regional Office
- Kansas Department of Wildlife and Parks
 - Pratt office
 - Wichita office
- K-State Research and Extension
 - Hutchinson office
- Wichita State University Biology Department
- Sedgwick County Conservation District
- City of Wichita
 - Public Works
 - Environmental Health Department
 - Water and Sewer Department

All of the ambassadors have jobs or extensive background knowledge in areas of water quality, water management, and water related research. This willing cooperation of the different agencies and entities, to work together on a common task, is indicative of the importance that they all hold on getting accurate information to the public regarding surface water related topics.

The Wichita River Festival for 2003 was a nine-day event that was a “party along the river”. This event uses the Arkansas River as a back drop to bring together the community with all the participants and activities located on the banks of the river in downtown Wichita, Kansas. The Wichita River Festival has been going on for (how many?) years and in the last few years water quality issues have been headline news prior to and throughout the river festival dates. The last Saturday of the event typically has several activities in or along the immediate banks. This is typically the time that water quality issues are of the most important as some participants have direct contact with the water.

Ambassadors were provided survey cards to distribute and a tally sheet to record questions or comments from festival patrons. 298 questions and comments were fielded as the surveys were distributed. Questions were separated into 8 different categories; water quality/pollution, fishing/wildlife/canoeing, historical, policy, water safety/swimming/wading, and others. Of the 298 inquiries, 161 related to water quality/pollution, 48 inquiries were about wildlife and fishing, historical and canoeing received 33 and 21 inquiries respectfully, water safety, policy, and geology received 11, 6, and 5 inquiries respectfully. On the “other” category, the dominating inquiry was about “Stinky the mascot”(Figure 1). The ambassadors indicated that many patrons were non supportive of having Stinky as a representative of the river or River Festival. Additional comments noted on the survey sheets include an expression by one patron that people were aware of the sensationalizing and negative tone that the media has placed on the current condition of the Arkansas River. A comparison of the over dramatic frenzy made by the media about the water quality around

River Festival was compared to local storm cover. “If there is a cloud that appears in the sky the news channels will break into the TV programs to provide warning of impending raindrops.”

Survey cards were handed out along with brochures about the Arkansas River. The ambassadors tried to encourage a higher return of survey cards by providing an incentive through a free movie rental. Of the approximately 1,300 survey cards handed out to the general public, 24 were returned to Block Buster or were mailed in. In addition to the cards handed out at the river festival, additional cards were handed out to city employees working at the health department and sewage treatment plant. Ten cards were received from sewage treatment staff and 33 cards were received from health department staff.

All cards were combined and tallied and then separated into four groupings. The groupings were based on where/how they were received to provide a multiple cross section view of the people surveyed. The four groups include Blockbuster, mail-ins, health department, and sewage treatment. All surveys were also determined to be urban or rural for demographic usage. The tally system consisted of a “1” for yes answers and “0” for no answers. For questions not answered with y/n options, numeric values were averaged and use frequency was totaled. Data will be reported in a total data set and then also into the different groupings to see if there were difference among the four groupings.

A total of 67 surveys were included in the data results. All combined surveys indicated that 88% of the community view themselves as environmental conscious (EC) (Table 1).

Table 1

	Environmental Conscience	Recycles	Know what NPS is	People in home	Car in household	Throw litter out car	Consider cigarette butts litter
Total average	88%	57%	46%	2.33	2.24	6%	96%
Total count	67	67	67	67	66	67	67
BB average	77%	38%	31%	3.00	2.31	8%	92%
BB count	13	13	13	13	13	13	13
MI average	82%	64%	27%	2.36	2.27	0%	91%
MI count	11	11	11	11	11	11	11
P2 average	100%	60%	70%	3.30	2.78	0%	100%
P2 count	10	10	10	10	10	10	10

HD average	91%	61%	52%	1.76	2.06	9%	97%
HD count	33	33	33	33	33	33	33

(BB = Blockbuster, MI = mail-ins, P2 = Sewage Treatment Staff, HD = Wichita Health Department)

57% of the community recycles in some form or another with 46% of the people understanding what a non-point source pollutant is. Our community has an average of 2.33 people/household with 2.24 vehicles/household. An overwhelming majority, 96% of the people view cigarette butts as litter while only 6% of people still tend to throw trash out their car windows.

Urban residences comprised 60 of 67 surveys or 90% of the returned surveyed households.

Of the urban households 60% have pets with an average of 2 pets/household. 80% of pet owners clean up fecal waste generated by their animals. 23% clean up daily, 43% weekly, 11% monthly and 3% less frequent than monthly (Table 2).

Table 2

	Have pets	How many	Pick up waste	How often	On public sewer	On public water	Fertilize lawn	Fertilize how often	Use insecticide or herbicide
Tot. avg.	60%	2.00	80%		95%	97%	65%		
Tot. count	60	34	35	D=8 W=15 M=4 O=1	59	59	60	S=33 O=21 M=5 Q=1	O=28 I/H=12 I=10 H=10
BB avg.	92%	1.40	64%		100%	100%	54%		
BB count	13	10	11	D=3 W=3 M=1	13	13	13	S=7 O=6	O=9 I/H=2 I=2
MI avg.	50%	2.50	100%		71%	86%	75%		
MI count	8	4	4	D=2 W=2	7	7	8	S=7 O=2	O=4 I/H=2 I=1 H=2
P2 avg.	67%	2.33	83%		100%	100%	78%		
P2 count	9	6	6	D=1 W=4	9	9	9	S=6 Q=1 O=2	O=2 I/H=3 I=1 H=3
HD avg.	48%	2.14	86%		97%	97%	62%		
HD count	29	14	14	D=2 W=6 M=3 O=1	29	29	29	S=13 M=5 O=11	O=13 I/H=5 I=6 H=5

(BB = Blockbuster, MI = mail-ins, P2 = Sewage Treatment Staff, HD = Wichita Health Department)

(How often: D = daily, W = weekly, M = monthly, O = less than monthly)

(Fertilize how often: S = seasonally, M = monthly, O = no use)

(Use insecticide or herbicide: O = no use, I/H = both, I = insecticide, H = herbicide)

Households hooked up to city water and sewer consisted of 95% and 97% respectively. Households that used fertilizers comprised 65% with 85% of those fertilizing seasonally, 13% fertilizing monthly, and 3% fertilizing quarterly. Along with fertilizing, households were asked if they used any herbicides and/or insecticides. 53% of those surveyed indicated that they do use some form of insecticide and/or herbicide.

Rural responses totaled 7 and had little differences among respondents. Because of the low number of surveys for rural households, no more discussion will be made at this time.

Further breakdown of the surveys into the four groups showed that the groups did show some differences in responses. The following few paragraphs will be discussing the difference among the groups regarding specific question areas. Differences between city department and public responses will be examined with special focus on Blockbuster surveys and mail-ins. An assumed association is that the city personnel surveyed will have a fuller understanding of environmental issues than the general public.

Of all the surveys returned, 88% of the people thought themselves to be environmentally conscious. The citizens that returned their survey to a blockbuster store only 77% felt they were EC while 82% of the mail-in surveys did. The city health department had 91% say they are EC with 100% of the Sewage Treatment staff EC. Although 88% of the households surveyed felt they were EC only 57% recycled. The Blockbuster group had 38% that recycled; mail-ins recycled the most with 64%, the sewage treatment and health department groups recycled about the same with 60% and 61% respectively. The citizens not associated with the city departments had the lowest understanding of non-point source (NPS) pollutants with the Blockbuster group having 69% and the mail-ins having 73% not understanding what NPS pollutants are. Although city departments had more people who understood what NPS pollutants are, 48% of the health department did not know. Sewage treatment staff had 30% who did not know about NPS pollutants

Questions in connection with litter, very little difference was seen between all four groupings. All groupings had less than 10% of those surveyed admitting to throwing litter out of the window. Over 90% of all surveys returned, for each grouping, acknowledged that cigarette butts were, in their opinion, litter.

For urban households, pet responsibility varied among groupings. 60% of urban households stated they had pets and averaged 2 pets/household. 80% of the pet owners regularly pick up after their pets. The people who returned survey cards to Blockbuster had 92% of the households with pets in which 64% of the households regularly picked up after their pets. 86% of these households clean up after their pet daily or weekly. Blockbuster surveys also had the lowest pet/household ratio with an average of 1.4 pets. Mail in surveys had 50% of the households with pets and averaged 2.5 pets. Mail in surveys had 100% of the households picking up after their pets daily or weekly. Sewage treatment staff and health department staff had 67% and 48% of households with pets and averaged 2.33 and 2.14 pets/households respectively. 83% and 84% of city staff households surveyed cleaned up after their pets with 76% of these households cleaning up either daily or weekly.

Of urban households surveyed, 65% use fertilizers and 53% use insecticides and/or herbicides. Blockbuster surveys had 54% of households that used fertilizers. All of these households only fertilized seasonally. Of the blockbuster households, 31% used some form of insecticides and/or herbicides. Mail in surveys had 75% of households that used fertilizers. 56% of the mail in households use some form of insecticides and/or herbicides. Sewage treatment staff had the highest percent usage of fertilizer and insecticides and/or herbicides with 78% for each type of application. The health department had 62% of surveyed households using fertilizers and 55% using insecticides and/or herbicide.

Households on public water and sewer were 97% and 95% respectively. Only mail in survey households averaged less than 97% of public water and sewer. These households had 71% and 86% for public sewer and water respectively.

Summary

This project was set up on a “trial by fire” approach. Results of this project are open for many plausible interpretations. It is important to point out factors that may limit the scope of the data. An estimated 300,000 patrons may have attended the Wichita River Festival over the weeklong celebration. The River ambassadors only worked one day and in one area of the city. The ambassadors handed out 1,300 survey cards, in addition to other educational material. This is approximately 0.3% of the attendees who received survey cards. Of the 1,300 cards handed out, an exchange of information took place with 296 questions or inquiries from the 24 ambassadors. 23% of the 1300 patrons contacted had a question or comment for the state experts. It should be noted that ambassadors stated that they initiated much of the dialogue with people to just get the information out.

Water quality appears to be the most important topic for patrons with 54% of all questions and comments having some reference to water quality (Fig. 1). Many comments were on when the City of Wichita or the State of Kansas were going to clean the river up. There were other interests regarding fishing and wildlife, canoeing/boating and history. Little interest was observed in policies, geology, and swimming/wading. As previous mentioned, several patrons discussed Stinky, the mascot, and were not supportive of the concept. Typically the middle age and elderly people were often opposed to the use of the mutant fish puppet. Several patrons liked the idea of the ambassadors getting out and being available.

The data collected from the survey cards, like the questions asked of the ambassador, should have some of the limitations of the data set high-lighted. The greatest limiting factor is that of 1,300 cards handed out to the general public, there were 24 returned which is less than 2% of the cards handed out were returned. This low number makes substantiating the derived interpretation of the data difficult in connection to the public as a whole. In addition to the 24 cards from the general public, an additional 43 cards were returned from City of Wichita staff from 2 departments. Although all survey cards were compiled together for totals, they were also separated to compare variability among groups. Primary comparisons were made between 2 groups of the general public and two groups from the City of Wichita. Both of the city departments have environmental emphasis responsibilities for work projects. With an understanding of some of the limitations presented, the data being discussed will try and limit the interpretations of the data to the households and citizens represented by the returned survey cards.

Many of the survey card questions were to see where the basic understanding of the people on general non-point source (NPS) pollutants. Additional information was to get a general household census on family size and pet population. Survey questions will be condensed into household information, environmental conscience, litter, NPS, pet management, and chemical application.

The general household data suggests that most households average just over 2 people with 2 vehicles (Fig. 2). An interesting note is that the health department actually averaged more vehicles than people per household. Of the households surveyed almost 60% have pets with an average of 2 pets. The general public averaged the lowest and highest pet ownership with blockbuster households (households that returned the survey cards to Blockbuster for the incentive) averaging 1.4 animals and mail-in households (households that returned the survey card by directly mailing the card to the City of Wichita Health Department) averaging 2.5 animals (Fig 3). Of the pet owners surveyed, 80% claimed to clean-up fecal waste from their pets regularly. Again the general public had the

highest and lowest rate of pick-up with the mail-in households having 100% weekly or daily cleanup while 64% Blockbuster households did.

Chemical application around households was addressed by asking if fertilizers were used and how often and also if herbicides and insecticides were applied. This separation of chemical application was to determine what possible nutrient loading might be present from fertilizers and if possible spikes of toxic poisons might be present from pesticides that could enter the river system. Public use of fertilizers consisted of 65% of the population (Fig. 4). Plant-2 employees (plant-2 is Wichita Water and Sewer Sewage Treatment Plant #2) had the highest proportion of chemical users with 78% of the staff using both fertilizers and pesticides. Blockbuster households had the lowest use of chemicals with 54% using fertilizers and 31% apply pesticides. Through out the full data set, seasonal application was the majority application rate. With over 2/3 of the population using chemical application there is a run off source prevalent with the urban watershed. Interesting is the fact that one of the highest environmentally conscientious (EC) groups has the highest chemical application.

Environmentally conscientious people comprised 88% of the total data set with the lowest percentage of EC people from Blockbuster households comprising 77% (Fig. 5). A second question was asked how many people recycle and can be compared to the EC people and shows a dramatic lack of a simple practice that is known to help protect the environment. The number of people who recycle is 57% of the total population, or 65% of those people who consider themselves EC. Although people are aware of what is EC, application of EC practices may not be as high. The two lowest EC groups were the general public. This is to be expected as most the city staff has taken their jobs because they are interested in environmental protection. The highest recycling group was the mail-in households with 64% claiming they recycled in some fashion.

Efforts of past informative programs have had an impact on the community as a whole. Ninety-six percent of the community considered cigarette butts as litter and only 6% of the community admitted to throwing trash the window (Fig. 6). These are very encouraging values as a high proportion of the community acknowledges they understand that the small contributions of trash is a pollutant. Also, the personal responsibility to dispose of litter does not include using the area ditches as a dumpsite. A very encouraging piece of information in that what we teach the public today can be understood and incorporated for the future benefit of the watershed and the community.

Non-point source pollutants had the lowest percent of understanding by the general public and even many city staff that may have jobs that relate to the reduction of NPS pollutants. As a community 46% of the people knew what non-point source pollutants referred too (Fig. 7). The general public had the two lowest percentages of people who understood what NPS pollutants were. The mail-in households had only 27% and the Blockbuster households had 31% who knew what NPS pollutants were. The area of NPS pollutions is truly an area that needs more community education expansion. The concept that we all are responsible for our watershed needs to be infused into much of the water quality issues that arise throughout the year, because this is one area that the majority of the public does not have a strong understanding.

Conclusion

The small participatory data set suggests that increased public education on NPS pollutants and watershed stewardship should be pursued. Many of the current water quality impairments can be directly connected to NPS sources. These impairments consist of excessive silt loading, nutrient and bacterial loading away from point source discharge location, and pesticides/herbicides used in rural and urban settings to just list a few pollutants of concern. While this has been well established, the general public still perceives the problem and solution as being a governmental matter. This concept

alleviates the responsibility of the citizens in reducing pollutants from their daily activities. The public demands cleaner surface waters, but are unaware, for the most part, that they are part of the contributing problem contaminating the same water they want cleaned-up.

More education in local programs should focus on how to reduce runoff NPS pollutants associated with rain events. As a result of this project the public's NPS understanding is the least understood. Inversely the water quality areas that have the greatest difficulty in minimizing pollution are NPS. More education of the public in how NPS's are connected to daily lives and how to minimize the contributing levels by the public will predictably lower the pollutant loadings of the surface waters. A good example of educating the public can be seen in the public's awareness of what litter is and how much is not being thrown out cars into our ditches. The need to share information and keep instructors and teachers up to date, on the most recent concepts and practices that help to reduce NPS pollutants, is evident in the lack of the public's awareness to their role in preventing NPS pollutants.

Figure 1.

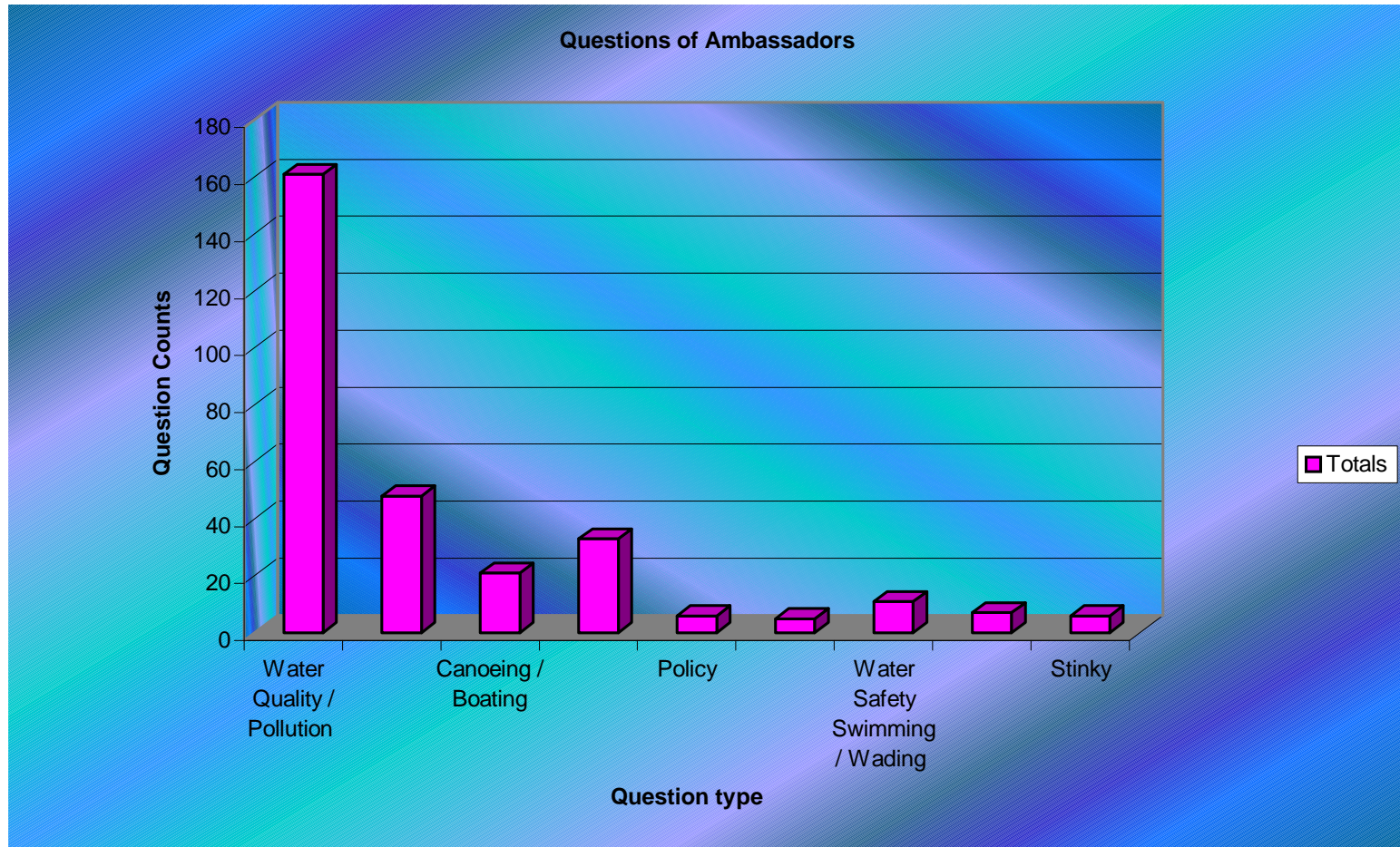


Figure 2

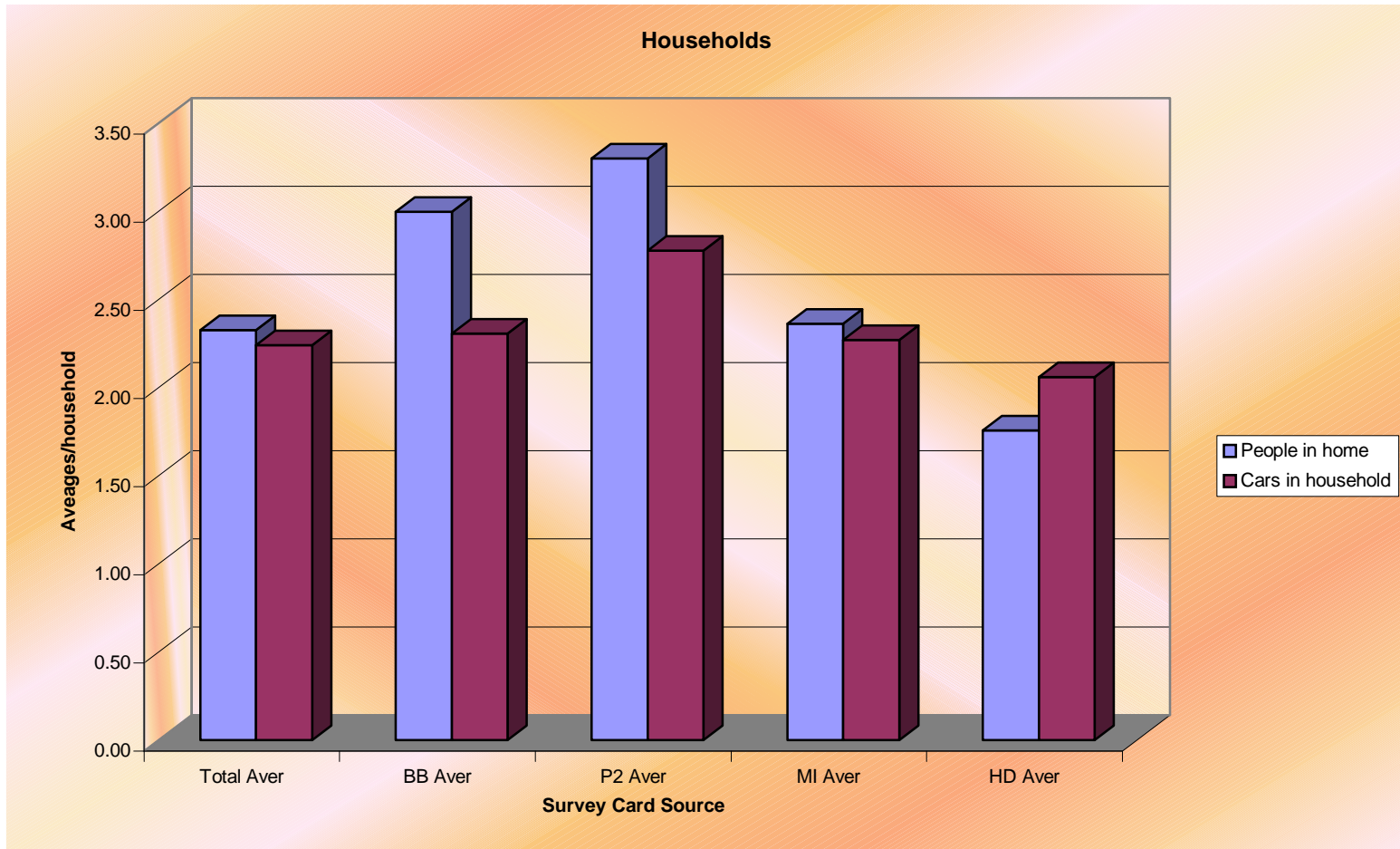


Figure 3.

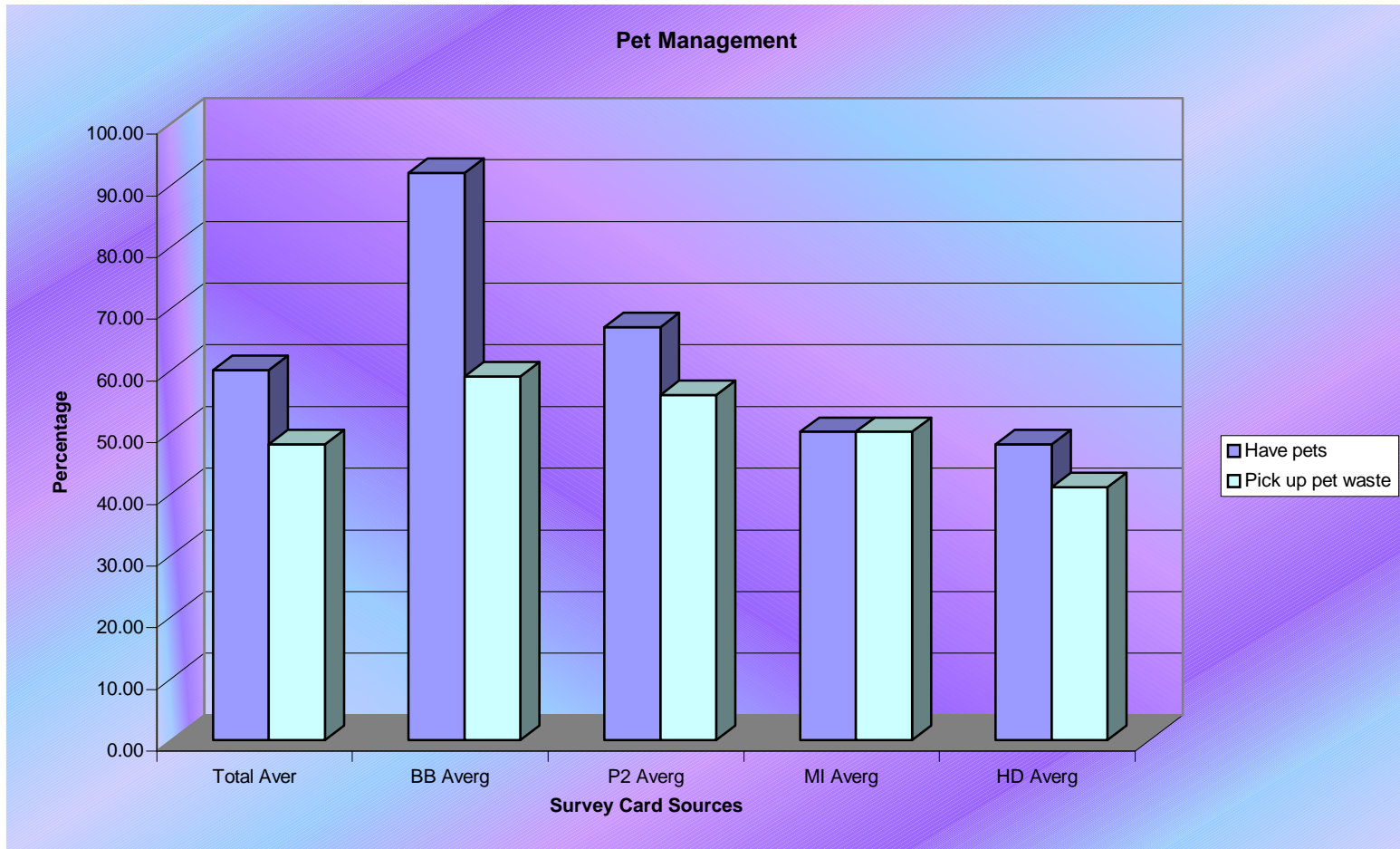


Figure 4.

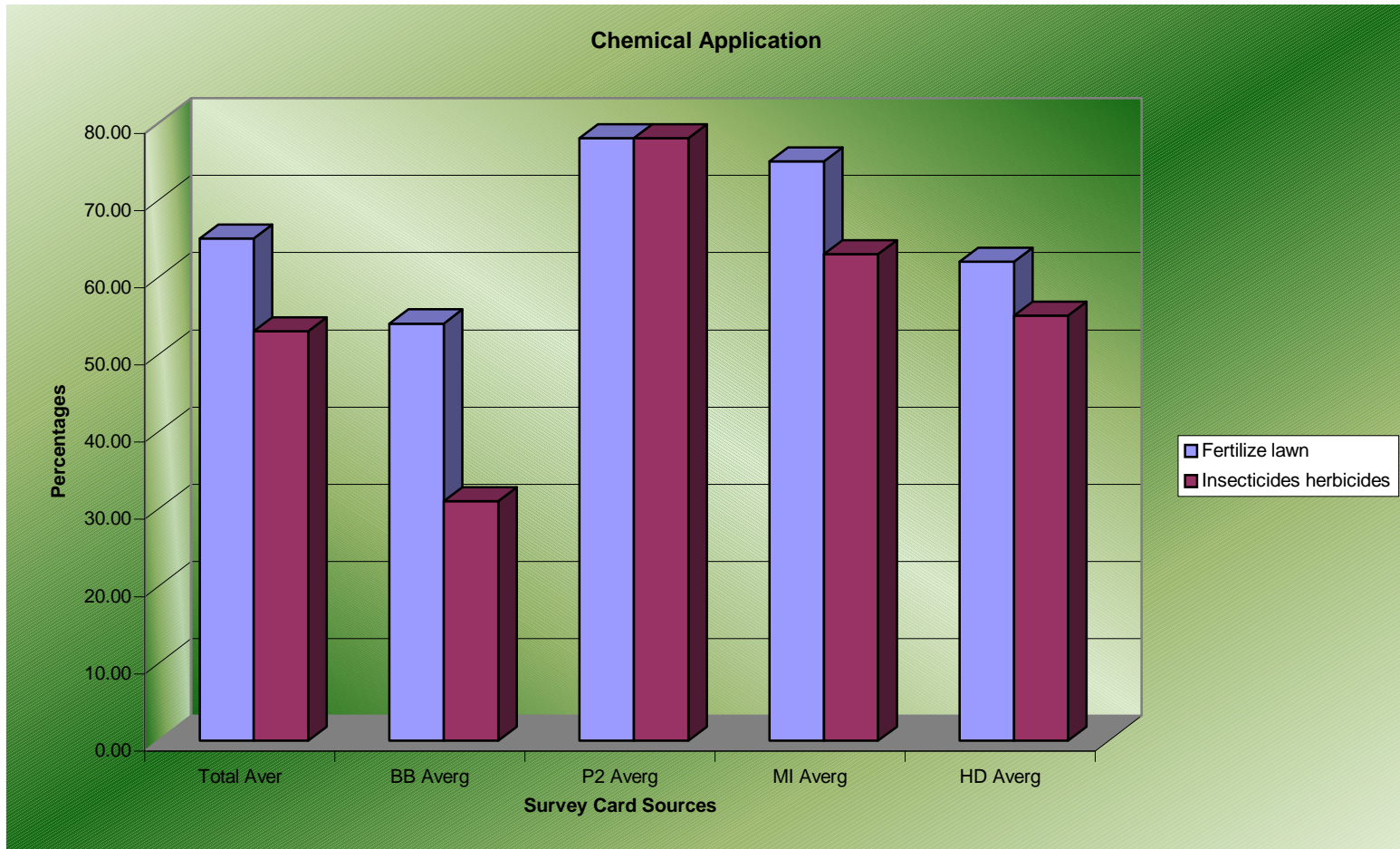


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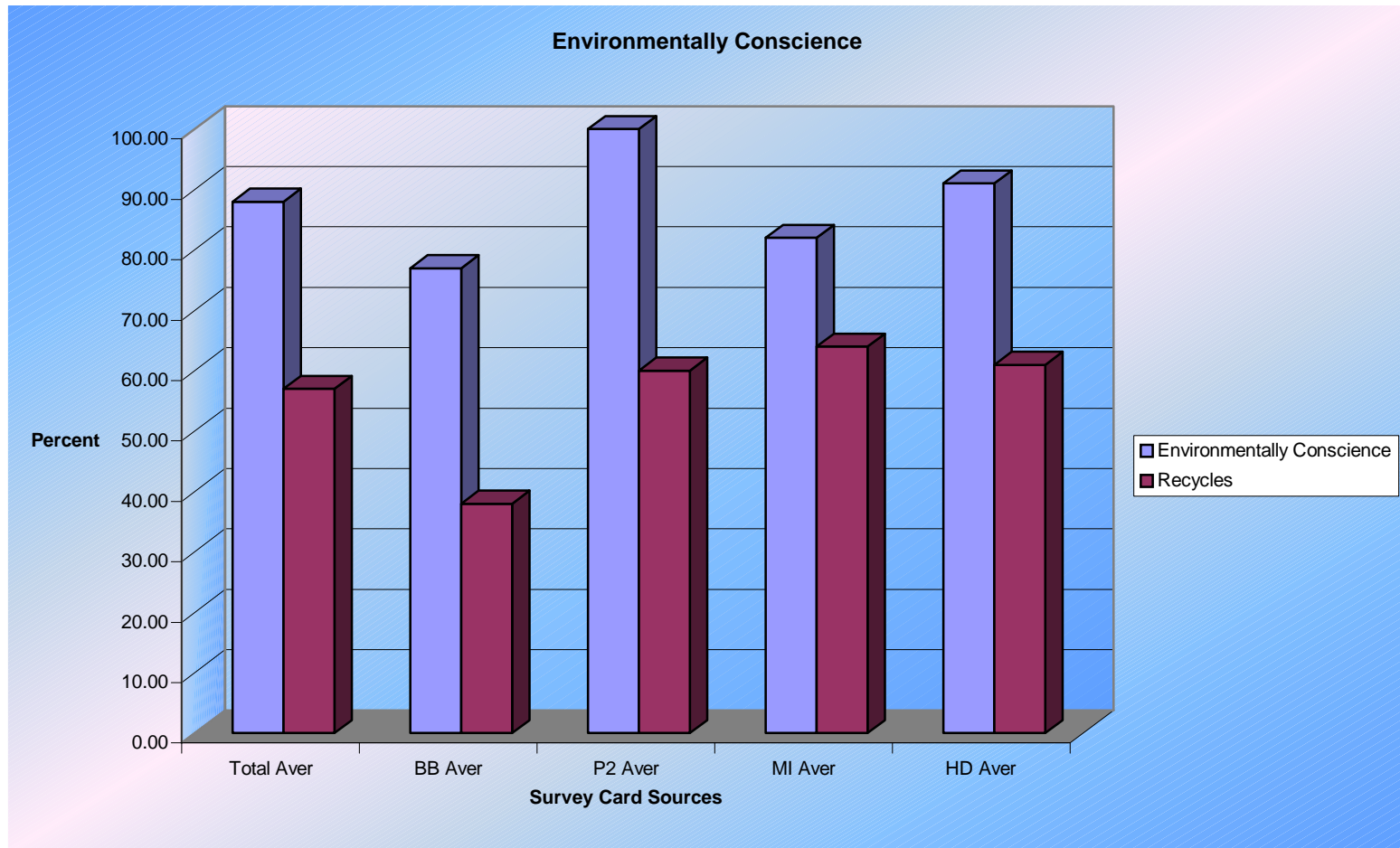


Figure 6.

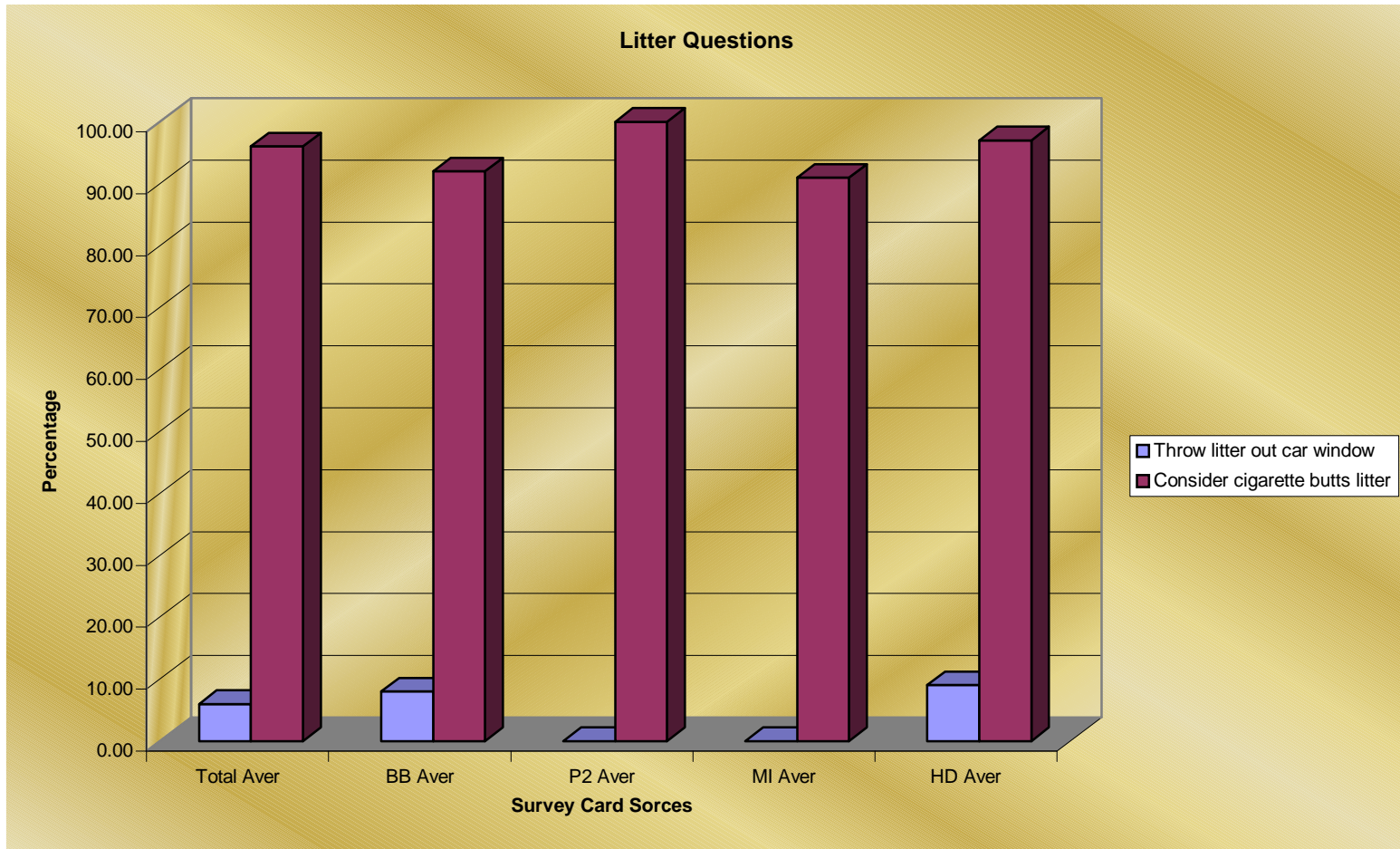


Figure 7.

