

Faecal litter management - a local government priority for reasons of community health and environmental amenity

Virginia Jackson

ABSTRACT

Many local authorities around Australia have introduced laws that require dog owners to pick up after their dog in public places. In New South Wales, this requirement is contained in the Companion Animals' Act.

A range of products and facilities has been developed and are in use around the world to address this issue. However the expense involved can be extremely high and local authorities need to decide carefully whether this is the best allocation of resources relative to other priorities. Virginia will outline the results of recent research on the options available for removing dog faeces. She will also report on a recent nationwide telephone survey that sought to uncover the importance of unremoved dog faeces vis-a-vis other animal management issues.

INTRODUCTION

Many local authorities around Australia have introduced laws that require dog owners to pick up after their dog in public places. It follows apparent community concerns about the health, environmental and amenity impacts of unremoved dog faeces. In New South Wales, this requirement is contained in the Companion Animals Act.

A range of products and facilities have been developed and are in use around the world to address this issue. Many authorities are also going to considerable effort to enforce and educate their communities about picking up after their dog. All this can add up to extremely high costs which I know some Councils are beginning to question.

I don't want to dampen anyone's enthusiasm. The effort made over the last decade is commendable. However now is an opportune time to review progress. In this paper, I will report on an evaluation of options for removing dog faeces undertaken for the Cities of Banyule, Manningham and Maribyrnong in Victoria with Parks Victoria. It looks at the approaches being used here and overseas. It also looks at the reasons why people don't now pick up. This is important if we are to match the best techniques to the corresponding behavioural pattern.

The paper also reports on the results of a recent nationwide telephone survey that sought to establish the significance of unremoved dog faeces relative to other dog management issues. The results are compelling. They suggest that dog poo, as an issue, is perhaps not of the magnitude we thought it was. This doesn't mean we should abandon efforts to get dog poo off the ground. Indeed, we should all continue to improve and refine the approaches used. However if apparent community expectations are driving you to enforce, educate and provide more facilities at ever increasing cost, then the results of this survey might point you towards a shift in priorities. It might be OK if you have unlimited funds, but every dollar spent on dog poo draws funds away from other important issues.

OPTIONS AVAILABLE FOR REMOVING DOG FAECES

In October, 1999, my firm was commissioned by 3 Victorian Councils (Banyule, Manningham and Moonee Valley) together with Parks Victoria to undertake a study of options for the removal and disposal of dog faeces in public places. This followed concerns raised in their respective communities about the impact of unremoved dog faeces on amenity, public health and the environment.

The study reviewed the material available on removal and disposal of dog faeces. The intention was not to recommend one, universal solution but to highlight the strengths and weaknesses of each option so that each participant could design a program that best meets their needs. Importantly, the recommendations were only tentative as there are still many unanswered questions that were beyond the scope of this study. Nevertheless one aim of the Study was to highlight issues for future trials so we can move towards vastly improved outcomes.

Methodology included:

- a computerised literature search of newspaper articles and journals from Australia, the United Kingdom and New Zealand between 1994 and 1999 undertaken by the Business Information Centre of the State Library of Victoria;
- a search of the World Wide Web;
- discussions with providers of products and facilities and collection of relevant marketing and other material; and
- discussions with local authorities that have used various products/facilities.

What do we know already about dog faeces?

Defecation habits of dogs

Understanding dog defecation habits is necessary for planning effective strategies:

- A dog that has been largely immobile for some time (eg confined to a back yard for most of the day) will tend to defecate soon after becoming mobile. Thus dogs that are walked from home, will tend to defecate in the street close to home. Dogs that are driven to the park will tend to defecate once they get to the park.
- Dogs can be trained to defecate in the same place at home and it is possible to train them to defecate in the same place (or type of place) in the public realm. The dog latrines of Europe are based on this assumption.
- Dogs are said to prefer defecating on soft surfaces, even long grass.
- Dog faeces vary in odour, colour and texture according to the dog's health, diet and body temperature. The weather may also impact on texture.

Health impacts

There is no question that there are health risks from unremoved dog faeces. However, Murray and Penridge¹ are of the opinion that many popular assumptions about dog faeces and zoonoses are misleading and overstated.

Toxocara Canis is the roundworm carried by puppies and some adult dogs. The roundworm parasite found in the dog poo of infected dogs and puppies can be passed onto humans.

There is no health risk from properly vaccinated dogs, however, recent research from Sydney has shown that the number of infected faeces found in suburban parks is higher than previously thought.

Nevertheless, providing proper precautions are taken the risks from contact with dog faeces is still low. Children are the group most at risk from the parasite as their immune systems are underdeveloped and they are prone to eating dirt. Active sports players might also be at risk.

Environmental impacts

Unremoved dog faeces are washed into stormwater drains and ultimately waterways where it is said by some to be one of the main reasons for excessive e-coli pollutions readings on beaches after heavy rainfall. The figures circulating have been subject to considerable dispute however. In particular, the CSIRO has found the main contaminant to be bird droppings.

Picking up and putting faeces in plastic is also a problem as it sends more waste to landfill. Some commentators say we are better off leaving dog poo on the ground than putting it in plastic as the latter prevents it from breaking down.

Amenity impacts

The amenity impacts of unremoved dog faeces include odours, flies, unsightliness and people's distaste about stepping in dog poo. Also, residents with no front fence sometimes object to dogs defecating in their front garden.

Other impacts

It has been suggested that dogs' urine and faeces can attract wild dogs and foxes. Sharks too might be attracted to dog faeces and urine on beaches and in waterways. Whilst these propositions may be plausible, we are not aware of any evidence that confirms or refutes them.

What do we know about why people don't pick up after their dog?

There has been much written about behaviour change in animal control and comparable areas of public policy eg. littering, safe driving, anti-smoking messages etc. Essentially the strategies rely on changing either:

1. attitudes; or
2. behaviour.

Changing attitudes is based on the premise that if people are made aware of the impact of their actions they are more likely to behave responsibly. Early psychologists believed that attitude change was a necessary precursor to behaviour change. More recently, psychologists have found that changing attitudes doesn't *guarantee* a change in behaviour. In fact there is considerable body of research that shows that the relationship between attitudes and behaviour is tenuous. Attitude is often an expression of how we would *like* to see ourselves behave rather than the behaviours we actually engage in.

This is why psychologists turned their focus to changing behaviours instead. The argument is not that changing attitudes doesn't work but that it can be expensive, slow and provides no guarantee of results. Changing attitudes can be relatively easy. The hard part is getting people to change their behaviour. Often people need to practice a behaviour and ingrain it as a habit before they will change behaviour permanently. There is also some evidence to show that once a person has adopted a behaviour, positive attitude change may follow. The criticism of behaviour change techniques is that they can have disappointing results in the long term once the intervention (eg. enforcement, rewards etc) stops.

The debate about attitudes versus behaviour still rages amongst psychologists (neither is likely to be responsible for all of the permanent behaviour change equation). However it is important that we understand basic behaviour change theory in order to understand the role and place of specific programs designed to encourage people to pick up.

Before looking at specific strategies in the dog faeces area, we first need to understand more about why people don't pick up. What follows is an adaptation of the generalised model of non-compliance found in the academic literature. Quite clearly different strategies will be appropriate for different causes of non-compliance.

Not aware

Ten to fifteen years ago very few people picked up after their dog. Today, more people are aware that picking up after their dog is the responsible thing to do especially in built-up areas. Many now pick up - many others don't, for a variety of reasons set out below.

This leaves a segment of the population that is still unaware of any arguments or laws supporting responsible dog faeces removal and disposal. Leather calls them the "*10% of the world who do nothing about anything*"². This group will resist most education campaigns, even saturation. The goal would be to isolate them to the point where an awareness finally emerges and they start to move along the behaviour change continuum to become habitual 'pickers-up'.

Distaste for picking up

I believe this is a central part of the explanation. In countless consultations, distaste and embarrassment at picking up and carrying around a bag of dog faeces has been raised. Concerns include smell, the possibility of coming into direct contact with dog faeces and the sensation of handling dog faeces (eg through a bag). However people I talk to also tell us that once the habit is established, the distaste factor rapidly recedes.

The distaste factor was a principle reason why some European countries concluded in the early 1980s that people would never pick up. This is important because it circumscribed the approaches used in these countries ever since ie use of dog latrines, motor cycles that pick up dog faeces etc.

In Australia, the momentum for picking up is reasonably well established and we therefore believe the same assumption is not necessarily appropriate for this country.

If people are to pick up after their dog, then ease of picking up is extremely important, although this will be different for each person. Some people prefer to use a scoop, others prefer to put their hand inside a bag. Paper bags are not so easy to handle and get wet easily. The early biodegradable bags were also prone to splitting.

Plenty of receptacles for faeces disposal is also important - disposal in any litter bin rather than in dog poo bins only is preferred.

I don't believe it is possible to prescribe the 'best' approach to overcome distaste for picking up, especially given the environmental considerations of using options other than plastic. The aim therefore should be for people to develop and use the option that best suits them.

There is little a dog owner can do about the texture of their dog's faeces (solid dog poo is relatively easy to pick up) although awareness of the impact of different diets could assist. The 'spray and scoop' described in the following section could overcome this barrier.

Also important is showing people how (demonstration) and getting them to establish the habit (ie changing behaviour not attitudes).

Remembering to take an appropriate device

Dog owners mostly need to take a device with them as dogs usually defecate soon after beginning a walk. The participants all reported incidents where dog owners claimed they had forgotten to bring a pooper scooper/bag with them or that they were not yet at the park to use the bags provided there.

This might just be an excuse. However it could also be part of the habit formation process eg. hanging the lead and pooper scooper/bags in the same spot. The legal requirement to have an appropriate device with them could also assist.

Inconvenience

Dog owners often cite the inconvenience of taking bags/devices with them and carrying them around with them once full. In consultation they invariably ask for more dispensers/bins to be provided. Once their dog has defecated dog owners might also be too far away from their dog especially if they are in an off-leash area.

Threat of getting caught and size of the fine

Both of these considerations are relevant however we would speculate that neither is central to the decision about whether or not to pick up. Some highly publicised cases have been heard (eg Lost Dogs' Home's DNA testing) however people are still by and large unlikely to encounter an animal control officer in the public realm. (Whether it is appropriate and/or practicable to expand the enforcement presence should additional resources be available is questionable).

Don't care

Some people know about the need to pick up after their dog but don't care. Some people also object philosophically to any requirement to pick up (*'bowel movements are natural and will break down in time'*). An on-going education campaign to gradually reduce the size of this group is likely to be the best approach for this group.

The strategies could engender *shame* or *embarrassment* at not picking up. Shame is a self-imposed sanction that occurs when people violate norms they have internalised. It has been used successfully in litter and drink driving campaigns. Embarrassment, by contrast, is a socially imposed sanction that occurs when dog owners violate norms endorsed by others whose opinions the dog owner values and who become aware of the dog owner's transgression. It too has been used successfully in behaviour change campaigns but is more contingent on externally imposed sanctions which are not guaranteed to be in place all the time.

Seriousness

The perceived seriousness of the health and environmental impacts of unremoved dog faeces no doubt plays a role in whether or not people pick up after their dog. However, scare campaigns have not been shown to work in other policy areas, especially where the threat does not apply to them personally. A more successful approach in litter campaigns has been to emphasise the benefits of picking up eg. *'our beaches/rivers/parks/streets are some of the best in Australia, lets keep them that way'*.

Situational factors

Situational factors are those factors that exist in the park or street which affect the owner's ability or decision to pick up.

Unremoved faeces already present

The academic literature on litter control clearly shows a link between the amount of litter already present and additional litter left behind. If this also applies to dog faeces, then prompt removal by maintenance staff is important in keeping parks and streets faeces free.

Follow by example

A corollary to the presence of unremoved dog faeces is the example set by others. When dog owners see other dog owners picking up they are more likely to pick up themselves. Conversely, if other dog owners are not picking up dog owners are less likely to pick up because the 'situational prompt' in this situation is that picking up in this area is not required or done.

Our observation over many years is that owners who pick up after their dog, do it to show they are members of the responsible pet ownership 'club'. They wear it like a badge. They pick up with a flurry of movement, making sure other people can see. This feature could be harnessed to advantage.

Presence of other people

As people are generally aware that picking up is now the responsible thing to do they may be more likely to pick up if other people are around ie. peer pressure. Similarly, many apparently responsible dog owners say they fail to see why they should pick up in isolated areas where human feet won't tread. If their dog defecates in the bush they say it will disintegrate naturally.

Proximity to receptacle

If owners are too far away from a receptacle or bag dispenser they are less likely to use it. Design and siting is therefore very important.

On-leash areas versus off-leash areas

Dog owners are quick to deny that it is easier to pick up after a leashed than an unleashed dog. However these arguments are usually advanced in the emotive atmosphere of deciding on- and off-leash areas. Although there is no conclusive evidence, I believe it is less likely that dog owners will pick up after their dogs in off-leash areas either because they don't see it happening, or because it takes too much effort to go over to where the dog has defecated.

Physical barriers

The presence of dog faeces in a specific area will be reduced or eliminated if dogs are excluded from that area by a physical barrier such as a fence. This might be a particularly sensitive part of a park or playground. No front fence requirements also increase the likelihood that home owners will be left with dog faeces on their front lawn.

Conclusion about why people don't now pick up

We need to understand why people don't pick up before we can start to design programs for long term behaviour change. The above discussion adapted from the generalised model of non-compliance is a starting point. However, further research is needed to attribute relative weights to any one of them. It is quite likely that a combination of factors is at work which vary for different people. From my own observations over many years I suspect the distaste factor is likely to be significant, along with ingrained habits and lack of direct experience with picking up.

This is quite different to the situation that existed a decade ago when people were only just starting to become aware of the need to pick up. Behaviour change theory shows that people need to move through the continuum from:

1. awareness, to;
2. positive disposition towards a behaviour, to;
3. actual change in behaviour.

The move from 2 to 3 can often be the hardest. We suspect Australians are now spread over the entire behaviour change continuum with the majority falling in level 2. We now need to examine the programs available for encouraging people to move to level 3.

The programs available

The following discussion examines the main options for managing dog faeces in the public realm. Each can be used in isolation or in combination with others. Some of the options will include variations but have been grouped together either because they are the same generic product or because they are a similar mechanism or device.

Bags and bins

Bags and/or bins are now used in many parks throughout Australia. Use by dog owners has been very high. Bags are usually available from dispensers provided in parks and are either paper with a cardboard scoop or plastic (biodegradable or non biodegradable varieties are available). A range of bins from different companies is also available, although many councils allow the disposal of bags in ordinary litter bins.

Council provided bags are effective in parks where dogs exercise but they can't be provided in every park, nor would we want them to be. They are also less effective for people who walk to the park (or don't use a park) as dogs will usually defecate on the street before they get there. Finally, they can be vandalised (either damage to the installation or spreading the bags around the park). Some councils are questioning the expense of replenishing and maintaining bags and bins.

My research reveals that in areas of high dog use, bins need to be emptied around 3 times a week in summer and twice a week in winter. The merits of this program therefore needs to be weighed up carefully against the cost. Plastic bags are around 30% cheaper than biodegradable plastic bags and are also harder (important for overcoming the distaste factor). However, there are also questions about how environmentally sensitive biodegradable bags are as they may blow off noxious fumes as they break down. Other sources say that on environmental criteria it is better to leave the faeces on the ground than put it into non-biodegradable plastic.

Paper bags and scoops are the most environmentally sensitive but some people don't like them. They can be difficult to use and are prone to getting wet.

We believe there is a central place for bags and bins in the public realm. They are especially suited to municipalities which have a limited number of reasonably well defined off-leash parks with defined entry points. They are less suited in municipalities with many, large off-leash parks with open boundaries and numerous access points. An added advantage is their constant reminder that picking up is the responsible thing to do. They are also an aid to enforcement - '*use the bags provided*'. They can also be used in areas of high human activity and in highly sensitive areas such as playgrounds and environmentally sensitive areas.

Pooper scoopers

A range of hand-held pooper scoopers are available including both disposable and reusable products. These could be purchased by owners or made available by Councils. They are an alternative to using bags.

Collar and lead pouches

Pouches or bags that can be attached to a dog's collar or lead will hold bags used to pick up dog faeces. If provided by a council they are a one-off cost. One Victorian organisation is marketing their 'pooch pouch' to Victorian local authorities for use in education and enforcement. They could be seen as a visible symbol that this is a responsible pet owner. They could also be promoted by local authorities that have local laws requiring owners to carry a device for picking up dog faeces.

Dog toilets

Dog toilets are prominent in Europe - Paris is famous for them. They are areas set aside in parks and on street pavements (usually 6m x 3m) where dogs can defecate and urinate. The toilets need to be very carefully designed to make them attractive enough for dogs to use. Dogs also need to be trained to use them. The soil needs to be more attractive than the surrounding soil ie. it can't be too dry and it can't be too moist.

Dog toilets need to be cleaned regularly and the surface replaced several times a year. There also needs to be a sufficient geographic spread of toilets (ideally owners would encounter 2-3 toilets on any given walk). If dogs don't make it to the enclosure European dog owners are encouraged to kick the faeces into the gutter. The environmental issues don't seem to have taken hold.

It is not recommended that such a widespread program be established in Australia, although the idea has merit in strategic locations such as the entries to parks to which the majority of dog owners drive. The idea in France began around 15 years ago after survey results revealed 95% of people would never pick up their dog's faeces. By contrast, the principle of dog owners taking personal responsibility for removing dog faeces is already quite well established in Australia.

A variation of the dog toilet in Australia is the 'pooch patch', first introduced by Warringah Council in Sydney. These are patches in parks with a post in the centre to simulate a telegraph pole (which dogs are supposedly attracted to for defecating). Owners then dispose of the faeces in the bins provided. The pooch patch has received a lot of local and international publicity however it has not undergone a comprehensive evaluation.

An advantage of dog toilets is that they are a 'clean point' by centralising waste matter and optimising collection. Dog toilets and disposal units below are likely to be most suited in parks to which the majority of dog owners drive.

Disposal units

'Doggy Dunny's' are a disposal unit that can be installed in private gardens. They are a bin sunk into the ground with a flip up lid. They are filled with water with bioenzyme added that biodegrades and deodorises dog waste. The resultant liquid is then able to be flushed out into the garden.

A large scale unit has been designed for council use. It consists of two holding bins which are used on alternative weeks as the bioenzyme breaks the waste down over approximately 7 days. Attached to the two disposal bins is a diffusing unit underneath the ground which then lets the resultant liquid compost permeate out into the surrounding ground, fertilising as it goes. Maintenance is said to be minimal and there is no waste to be removed. A weekly flushing with a hose and a top up of bioenzyme is the only interaction required by the user. The bins can be used in conjunction with biodegrading bags or pooper scoops. A problem with their use in the public realm is the higher possibility of foreign matter such as plastic bags being deposited in the bin.

Composting

The City of Maribyrnong (Melbourne) is composting dog faeces following support from local dog owners. The Maribyrnong exercise has been a trial and the managers of the program have learned a number of important lessons. Nevertheless the uptake by dog owners has been much higher than expected to the point where the program is unable to cope with the amount of excrement being composted.

The trial in Cruickshank Park, Yarraville, involves 10 compost boxes placed around the park with biodegradable bags and scoops provided for dog owners. We understand Melbourne University has tested the composting technique inside the boxes and it was a better option than collecting droppings in bins and disposing of them in landfills. Maribyrnong's aim was to reduce dog waste on the ground but not send it to landfill. Two years was

spent perfecting a method of composting that would convert the waste into a harmless product that could be used on the council's parks and gardens. The composting idea came from a local resident who was conscious that the waste he threw in the bin from his 2 dogs was going to landfill so he tried recycling it in his backyard. The experiment was a success and the resident convinced his council to set up a scheme in Cruickshank Park. Residents can deposit their dog's waste using a paper bag and cardboard scooper provided by the council.

The cost has blown out from original estimates. Preliminary discussions with council officers suggest that whilst composting may be appropriate for Cruickshank Park, which has an active dog walkers group, it may be less appropriate in other parks due to the high costs and other operational difficulties. Nevertheless we believe the concept has considerable merit especially on environmental grounds and warrants further trialing.

Dung beetles

The use of dung beetles began in grazing areas and has been modified to suit metropolitan parks in the removal of dog faeces. The dung beetle feeds only on excrement. Individual beetles live for approximately 4 weeks and adult females will lay 50-60 eggs in a two day period. They build their nests under cowpats or dog droppings working from under and within the dropping and use a system of tunnels in the ground for breeding and storage of eggs. When a supply of dung is exhausted or conditions do not suit they fly to another source and continue the process. The mechanics of feeding and nest building breaks up the excrement which releases nutrients. As the dung is carried into the tunnels by the adult beetles, nutrients are returned to the ground. The tunnels also improve soil aeration and water penetration. Different species of dung beetle can be found throughout Australia and are suited to different situations.

Most beetles will bury dung in Spring, Summer and Autumn. They tend to be less prevalent in Winter which is a shortcoming for their use as a faeces management measure. They are also dependent on a sufficient supply of dog faeces otherwise they will move - a shortcoming in sparsely used areas.

The use of dung beetles is cheap, simple and effective. It takes the onus off dog owners to remove and dispose of their dog's faeces meaning there is little need for education and/or enforcement. It also involves no additional waste going to landfill or dog faeces in waterways.

However, whilst I am confident about the future of dung beetles, I am nevertheless concerned about possible environmental impacts of introducing a new species into the ecosystem in the absence of conclusive supporting evidence. Some councils have adopted a cautionary approach until more is known. If introduced by the participants, their role vis-a-vis other faeces management measures needs to be clarified.

Council sweepers

In Europe, motor cycles are now being used to collect dog faeces with a specially designed vacuum. A European company has its' FIDO (the Faeces Intake Disposal Operation) which is mounted on a Kawasaki Mule 500 utility vehicle. The engine drives a vacuum unit capable of collecting 120 litres of dog faeces. Collected into a stainless steel container, it is mixed with disinfectant and water, which can easily be disposed of.

The New York Times reported in 1995 that "... in Paris alone, the city leases 70 motor scooters ('caninettes') to vacuum dog waste from sidewalks at a taxpayer cost of about \$8.4 million a year". It is understood that these vehicles are technically excellent. However they are very expensive to provide and operate.

Long grass areas

At the 1994 Australian Urban Animal Management Conference, it was suggested that dogs are attracted to long grass for defecating and that over time faeces break up naturally³. D Paxton suggested local authorities establish areas where the grass is deliberately kept long and that they be set aside for dogs to defecate in. We are not aware of any areas in Australia where this is used as a faeces management measure.

Fencing

Experiments conducted in the United States⁴ with temporary fencing (0.3m high posts with string attached) installed on the boundary of unfenced residential properties, revealed an immediate elimination on dog faeces on residential properties, however the authors concluded that the interventions were unlikely to have modified overall dog litter rates. These findings could be useful to property owners wishing to eliminate dog waste on their property and to park authorities wishing to eliminate dog litter from particular target areas within a public place.

Signage

Good signage is important. However it should be attractive, simple, positive in tone and focus on 'the how'. It should spell out clearly what the desired behaviour is ie. pick up with a scoop, put in the bin. This is backed up by numerous studies contained in the littering literature. Posting picture instructions on bag dispensers will help - it is amazing how many people don't have a clue how to do it.

Prompting and demonstration

In their experiments in the United States during the 1980s, Leonard and Zolik⁵ found that when anti-dog litter signs were posted relatively few changes occurred to the number of unremoved dog faeces. In the second phase where dog owners were given instructions and a demonstration on how to use a plastic bag to pick-up dog faeces, 82% of the dog owners proceeded to pick up after their dogs. With the return to baseline conditions, 63% of dog owners picked up and with reimplementation of the prompting, this level rose to 84%. These findings indicate that prompting through instructions and demonstration was effective in motivating dog owners to dispose of their dog's waste.

Other products

Dog diapers

The Dog Diaper Home Page promotes the sale of disposable and reusable nappies for dogs (through veterinarians, by license etc). The product appears to be in its early stages although a prototype has apparently been tested on a number of breeds.

This idea could be taken up in Australia in accordance with the principle that people should use the product that suits them best, however I believe it would need to be commercially driven. The prospect of sending more disposable nappies to landfill is a concern.

Spray and scoop

A dog owner in London has developed a spray that freezes dog faeces, making them easier to pick up. He apparently came up with the idea after noting that dog faeces were easier to pick up in winter because cold air was apparently keeping them firm. The product took 5 years to develop. It is an aerosol spray that freezes droppings in seconds, keeping them frozen for 10 minutes (enough time to up and dispose of responsibly).

I believe this idea has merit for use in Australia although it would probably need to be commercially driven as well. A disadvantage is that it requires owners to take another item with them, which may be a disincentive to its use although it would be relatively cheap and easy to use. Its introduction in Australia would have good publicity value. Environmental impacts of introducing another aerosol spray to the market would be of concern.

Defecation at home

In 1995, the environmental group Planet Ark Australia launched a campaign to get people to get their dogs to habitually defecate in special poo pits in their gardens before going on walks. This could be extended to special pooch patches. Dogs can be trained to defecate at home and the idea has merit. Home composting kits could also be encouraged.

Education

Education is crucial but it is expensive and needs to be carefully planned and targeted. Because of the possible budgets involved it needs to be assessed against provision of tangible products and facilities. State Governments have a role to play in education, although it is not an early priority of the current education campaigns of which we are aware.

If a brochure is used the text should be simple and interesting. It should identify clearly the desired behaviour (picking up/carrying a device), it should describe the effect upon other people and the environment and the message should be relayed in a positive, unthreatening way, avoiding condescension. Finally, the responsible authority should be clearly identified as the source of the brochure.

While the personal contact approach is expensive, councils may be able to incorporate it into the day to day activities of their staff. Numerous studies show that personal contact substantially augments the effectiveness of brochures.

Enforcement

Enforcement is said to be difficult because of the difficulty of actually seeing the offence occur and then proving the case before a magistrate. Nevertheless, there have been a number of successful prosecutions. We are now able to match a dog with its droppings through DNA tests.

Psychologists distinguish between specific deterrence (the impact of an infringement on the future behaviour of the offender) and general deterrence (the impact of the punishment of offenders on would-be offenders). The distinction is important.

If enforcement is to be used, it should be varied in time and place. Uncertainty of surveillance is what makes compliance work. If considering an enforcement blitz, councils should always start with a honeymoon period, then tell the media about their intention to prosecute and final results. State legislation could be amended to require dog owners to retrieve their dog's poo. This would be standard across the state, however it doesn't account councils that decide they don't need the requirement.

Do nothing

Doing nothing is an option that warrants consideration in states that don't have a mandatory requirement under their respective legislation. In some communities this has become less acceptable, but in many others it remains a sensible option.

THE SURVEY

The recent telephone survey was conducted by Newspoll Market Research for the Petcare Information and Advisory Service. It was conducted nationally among 1200 respondents aged 18 years and over. Respondents were selected by a stratified random sample process, which included a quota set for each capital city and non capital city area. To reflect population distribution, results were post-weighted to Australian Bureau of Statistics data on age, age left school, sex and area. Interviews were conducted by telephone and occurred over the period 4 - 6 August 2000. A copy of the survey is appended to this paper. The survey contained questions about the significance of dog faeces vis-a-vis other dog management problems. It also looked at the positive aspects of

owning a dog and whether these outweighed the negative aspects. Of the respondents - 42.8% owned a dog and 57.2% didn't own a dog.

The survey's aim was to uncover the views of that very large segment of the population that doesn't get involved in planning for dogs. The trouble with community consultation in animal management is that it tends to bring out the extremes in views (ie. for and against pets). The extremes don't necessarily balance out and they don't necessarily reflect the views of the entire community. Part of the problem is that we have one extreme talking about irresponsible dog owners that don't pick up and the other extreme saying they can't pick up if they aren't provided with the right facilities. This leads to the reasonably plausible conclusion on the information available that dog poo is a major issue to this community.

But is it a major issue? What does the rest of the community think? And do they want maybe tens of thousands of dollars spent annually by their local council on unremoved dog faeces? There may well be good reason to spend these amounts on environmental or health criteria but what of the criterion of community demand?

The survey sought to uncover this broader range of view. It sought first to ask people unprompted about the main problems with dogs. The results were interesting.

Less than a quarter nominated dog faeces as a major issue (respondents could nominate as many issues as they liked). This means 77.8% of respondents didn't nominate dog faeces as an issue at all. Problems of barking/noise were overwhelmingly seen as the main problem with dogs (by 37.2% of respondents).

When prompted, the results changed - dramatically. The percentage of respondents who think dog faeces is a major problem rose to 59.6%. The results for other problems also rose - 54.7% of respondents said dogs barking was a major problem, 54.7% said dogs biting was a major problem and 59.3% said dogs wandering/not being on leads was a major problem. These results highlight part of the problem with asking questions - when you ask people if a problem is a problem they tend to say yes more readily than they say no. Whether this is to 'please' the interviewer because it seems to be the answer expected or whether it is because the person remembers things they have read or heard about irrespective of whether they have any direct experience with it remains unclear. A word of caution however, these results seem to suggest that the more you promote an issue, the more people start to think it is a problem.

The issue then becomes "What regard do we pay to results from prompted questions?". The results are useful but they need to be considered in the context in which they were collected. They could be misleading if you are basing resource allocation on these results alone.

The survey also asked people about the positive aspects of dog ownership relative to the negative aspects. The vast majority of people said owning dogs was a good thing and that the positive aspects of owning a dog outweighed the negative aspects. This applied to both dog owners and non dog owners:

- 78.3% said that the positive aspects outweighed the negative aspects (16.9% disagreed and 4.8% didn't know);
- 94.7% of dog owners said that the positive aspects outweighed the negative aspects, (3.9% disagreed, 1.3% didn't know); and
- 66.0% of non dog owners agreed the positive aspects outweighed the negative aspects (26.7% disagree, 7.3% didn't know).

The main advantages of dog ownership nominated included companionship, teaching children responsibility, security, exercise and better health.

DISCUSSION

So where should local authorities go from here? There is still much we don't know about the motivations for responsible behaviour and the efficacy of particular programs however that should not stop us from making a start. The question is what start do we make and how far do we go. It is perhaps the second part of the question that can be the most difficult because ... well how long is a piece of string?

I believe your first question should be - Do we need to do anything about this issue at all? It may be that the capital and operational costs involved don't warrant the commitment.

Assuming you answer yes to the first question, the second question is whether you should focus budget priorities on:

1. cleaning up after dogs and their owners ie beetles, dog latrines, motor cycles that clean up etc; or
2. requiring/educating owners to remove their own dog's faeces.

This is crucial because it will dictate which of the programs outlined in earlier sections should be used.

The answer to this second question will be different for each council. Additional principles to bear in mind include:

- The momentum for picking up is quite well established in Australia through laws, press coverage, provision of bins etc.
- The European approach of providing dog latrines in parks and on pavements would be extremely costly to establish and maintain. It would also be unsightly. We doubt whether the Australian community would accept widespread establishment of dog latrines. Dog latrines also require ideal conditions to be maintained and for dogs to be trained in their use.
- The European approach of using council sweepers to retrieve dog faeces has been extremely cost to establish and maintain. It is not perceived to have been successful or money well spent by our contacts in the municipalities concerned. Some say it was a publicity stunt for re-election purposes.
- Dung beetles on their own won't remove all the dog faeces left on the ground. They have their place as discussed below, however care must be taken to clarify their role and place relative to the requirement to pick up.

If you decide that you will focus on encouraging people to pick up I believe there will be success especially in the long term. I believe many dog owners in Australia have progressed sufficiently along the behaviour change continuum to be aware of the need to pick up. I suspect many of those who don't pick up now could be poised to pick up if given the right inducements. For them, I believe the distaste factor would be the main reason why they don't now pick up with subsidiary reasons being ingrained habits, lack of direct experience with picking up and the unlikelihood that they will get caught. If asked, I suspect they would say they want to pick up but give an excuse such as "Council does not provide enough bag dispensers". This is consistent with the results of other studies of environmentally friendly behaviour where people demonstrate positive attitudes but offer excuses for not following through with the desired behaviour. It allows them to resolve the internal conflict by shifting some of the blame away from themselves.

We believe these barriers can be overcome with education supported perhaps by a base level of enforcement. Education programs should continue to talk about why people should pick up after their dog ie changing attitudes, however we believe the prime focus should be on changing their *behaviour*; on showing people how to pick up and dispose of their dog's faeces. It may be patently obvious but when habits are ingrained and the distaste factor is at work, it needs to be spelled out in simple, easy to understand terms supported by graphics ie. Step 1, Step 2, Step 3. Even the use of a consistent colour scheme (as opposed to corporate logos) would be a subliminal reminder that picking up in this community is now the responsible thing to do.

The message should be conveyed at every opportunity - on signs, on bins, in written material and in media communications. The emphasis should be on getting people to understand that removal of dog faeces is good and helping them to decide for themselves how they will deal with it. Where possible the message should be conveyed in positive terms focusing on the benefits of picking up (*help keep our parks and waterways clean*) rather than on the negatives (*dog poo ends up on our beaches*). It might be a moot point however evaluations of Victoria's water conservation and litter campaigns has shown positive messages have demonstrably superior results than negative messages.

Demonstration and talking to people about how to pick up by appointed officers should also be used - research in national parks in the United States shows the reach and impact of written material is augmented substantially by verbal demonstration and communication by park rangers. This might require the development of an officers' kit complete with plastic dog poo!

One or more of the programs outlined in the previous section should be considered by local authorities however the objectives should be clarified clearly. I have purposely avoided discussing costs involved. There are commercial sensitivities to consider as well as variations in quantity and over time. A significant proportion of the cost of many of the programs will also be involved in operational costs especially officers time. The main point I want you to take away is the need to avoid looking for the 'perfect' solution. The costs and benefits need to be weighed up carefully against your community's demands and expectations.

Footnotes

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Telephone survey questions

SECTION D — ASK ALL RESPONDENTS

- D1 Now a few questions about dogs. Does your household own any dogs including any puppies and working dogs? YES.....1
NO.....2
DON'T KNOW3
- D2 Thinking about dog ownership in general. Whether you have a dog or not, in your opinion, do the positive aspects of owning a dog outweigh the negative aspects of owning a dog? YES.....1
NO.....2
DON'T KNOW3
- D3 Some people say there are certain advantages in owning a dog. Please tell me if, in your opinion, each of the following is an advantage or not an advantage in owning a dog. Firstly... READ OUT AND ROTATE A-G

IF ADVANTAGE Is that a major advantage or a minor advantage?

	Major Advantage	Minor Advantage	Not an Advantage	None/Don't Know
A) COMPANIONSHIP	1	2	3	4
B) SECURITY OF HOUSE AND PROPERTY	1	2	3	4
C) BETTER HEALTH AND WELL BEING FOR THE OWNER	1	2	3	4
D) EXERCISE FOR THE OWNER	1	2	3	4
E) OPPORTUNITIES TO MEET OTHER PEOPLE WHO HAVE DOGS	1	2	3	4
F) TEACHING CHILDREN RESPONSIBILITY BY HAVING THEM HELP LOOK AFTER THE DOG	1	2	3	4
G) SAFETY AND PROTECTION OF THE OWNER	1	2	3	4

- D4 In your opinion, what, if any, are the main problems that can be caused by dogs? What other problems can dogs cause? PROBE FULLY

- D5 For each of the following, please tell me if you think it is a major problem, a minor problem or not a problem for people in the community? Firstly... READ OUT AND ROTATE A-G

	Major Problem	Minor Problem	Not a problem	None/Don't Know
A) DOGS BARKING TOO MUCH	1	2	3	4
B) THE POSSIBILITY OF DOGS BITING PEOPLE	1	2	3	4
C) DOG DROPPINGS IN STREETS AND OTHER PUBLIC PLACES	1	2	3	4
D) DOGS NOT BEING ON LEADS	1	2	3	4
E) DAMAGE BY DOGS TO HOMES, FURNITURE OR GARDENS	1	2	3	4
F) FINDING BOARDING FOR DOGS WHEN OWNERS GO ON HOLIDAYS	1	2	3	4
G) DOGS FIGHTING WITH OTHER DOGS	1	2	3	4

SR

- D6 And can I just check, which of the following best describes the home you live in? READ OUT 1-3

A FREE STANDING HOUSE	1
A SEMI-DETACHED HOUSE, TOWNHOUSE OR VILLA, OR	2
A FLAT OR UNIT	3
OTHER (SPECIFY) _____	4
NONE/DON'T KNOW	5

ABOUT THE AUTHOR

Virginia Jackson
 Harlock Jackson Pty Ltd
 288 Brunswick Street
 FITZROY VIC 3064
 Ph: 03 9411 4012 Fax: 03 9411 4011

Email: v_jackson@fc.ausom.net.au

Virginia is an urban policy analyst and town planner with over 17 years experience working with state and local governments and other consultancies. Virginia is a Director of Harlock Jackson Pty Ltd, a consultancy established in 1990 to specialise in the growing area of companion animals' management for governments and community groups around Australia. Services include the development of animal management plans and policies, public education campaigns, community consultation, training and professional development and original research. Many of Virginia's research projects have been world-firsts and have featured in international journals and conferences. Her most recent publication, 'Companion Animals in the City' was distributed to every state and local authority in the country.

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