Plastic Bags Revisited
Conservation Corner – January 2016

"Paper or plastic", over a year ago that was still a common option at many retail and grocery establishments in Ashland. Then, in November of 2014, the City Council of Ashland instituted a Bring Your Own Bag (BYOB) program. This program was in response to extensive citizen commentary about the environmental impacts of short term use, disposable plastic and paper bags. The program essentially banned plastic bags for most retail transactions and instituted a fee for paper bags. For some Ashlander's, the BYOB program resulted in little change in their daily routine. For those already bringing reusable bags when shopping, the absence of plastic bags simply meant less potential litter in the Rogue Valley. Now, as the city council looks to review the program in January of 2016, it may be helpful to reflect on the BYOB program, the fact that it was not passed unanimously and the scientific foundation on which the recommendations were made.

To elucidate the design and benefits of the program, it is beneficial to review how the Conservation Commission assembled its recommendations. The Commission began by examining over 20 peer reviewed studies on the implementation and achievements of programs limiting short term use bags. These programs exist throughout the world in places as varied and far away as China and Ireland and as close as Washington DC, Aspen, CO and Eugene, OR. In each case, programs ban plastic bags outright or create a financial disincentive for failing to bring your own bag. Fortunately for the commission, countries such as Ireland have plastic bag policy instruments dating back to 2002. (1) The effects of these policies have been studied going on a decade and program best practices are supported by statistically relevant scientific evidence. Although not always the case with policy instruments, successful BYOB programs stand in sharp contrast, and often contrary to, antidotal supposition. Employing the aforementioned studies, the commission evaluated the instruments which would; 1) eliminate plastic bags, 2) drive behavior towards bringing your own bag, and 3) work to ensure that paper bags did not replace plastic.

Based on their potential to become litter and substantial decomposition times, plastic bags were an easy choice for elimination. Although arguably convenient for the absent minded, polyethylene bags contribute 11 % to terrestrial and aquatic litter in Oregon with an average biodegradation exceeding 500 years.(2,3) Further, recycling rates for plastic bags in the US range below 7.2 % and countries such as Ireland, which have plastic bag policies in place, realized quantifiable plastic bag litter reductions from 5% to 0.3% following implementation.(4,5) Given their chronic hazard to ecosystems, and coupled with their persistent nuisance, it was time for plastic bags in Ashland to go.

A more difficult challenge was driving behavior towards bringing your own bag and not taking a disposable paper bag. Most of us would like to believe we would bring our own bag, however, research conducted by Zhu et al, shows that given the option of a free bag, over 71% of individuals will take the bag, even if they don't need it (i.e. small items which can be carried by hand).(6) This is further complicated by work from Bolderdijk et al. showing that pro-environmental education alone, while improving knowledge on an environmental subject, does not translate into motivational force for action.(7) Thus, the quagmire for the commission became recommending a program which would drive people to bring their own bag while not being excessively burdensome. As previously mentioned, significant research has been conducted in this field. The use of pricing elements to illustrate and assign tangible value at the time of checkout had been shown to be effective and became the commissions suggested instrument. (8, 9, 10)

But some might ask, why charge for the paper bag at all, and/or, how to decide on the correct price point? The answer is based on the Life Cycle Assessment (LCA) of paper bag production and disposal. Although paper bags biodegrade at a quicker rate than their polyethylene brethren (2 and 500 years, respectively), their immediate environmental impact is far greater. Production of paper bags requires 5 times more gigajoules of energy, create 3 times more carbon emissions, consume 25 times more water and results in 7 times more waste than plastic bags. (11) Production of 1000 paper bags vs plastic bags requires an additional 2,112 GJ (58,666 kWh) of energy, enough to power 11 average houses in Oregon for a year.(12) The same 1000 bags require an additional 3637 liters (961 gallons) of fresh water. With these potentially disastrous environmental impacts of a direct substitution from plastic to paper, the commission supported a 25 cent surcharge on paper bags. This fee structure coincides with the best practices from other communities showing a reduction in single use waste.(13) For better or for worse, the mayor acted as the swing vote which defeated the 25 cent suggested rate, resulting in the council approving a 10 cent fee. Now, over a year later, the commission is working with city staff to understand if the 10 cent charge on paper bags was enough to drive behavior and have people bring their own bag. As we head into 2016, remember to bring your own bag, save some money and do your part to reducing short term use disposables.

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