**Organiese afval : Geleentheid of verleentheid in Nature's Valley**

Inwoners van Nature's Valley het sedert die ontwikkeling in die vroeë vyftiger jare, water vanuit die Grootrivier vir menslike gebruik onttrek. Gebruikte water is weer deur individuele riool stelsels en besproeiing in die vallei vrygestel, sodat daar 'n kunsmatige watertafel geskep is. Inwoners het ook die ontboste gedeeltes toegelaat om weer toe te groei (kyk maar na die padreserwes). Die resultaat is verhoogde vegetatiewe groei wat jaarliks terug gesnoei moet word om toegang en spasie om die huise te verseker.

Bitou Munisipaliteit beskou dit nie as hulle plig om biologiese afval te verwyder nie. Dit is in elk geval ongewens om biologiese afbreekbare materiaal na 'n stortingsterrein toe te stuur omdat die koste daaraan verbonde ( vervoerkoste en spasie in die stortingsterrein) dit nie volhoubaar maak nie.

"Verwydering" het nie altyd 'n goeie reputasie in die Vallei nie (vergelyk die hoeveelheid tuinafval in die voorste duin, die padreserwes en die vullis- oorlaai stasie). Dit is ook belangrik om daarop te let dat, in terme van die land se oorkoepelende omgewings wetgewing, NEMA(National Environmental Management Act) die sogenaamde "cradle to grave" beginsel vasgelê is, wat beteken dat die persoon wat die afval produseer, altyd daarvoor verantwoordelik bly, totdat dit formeel gehersirkuleer is of in 'n gelisensieerde stortingsterein geberg is. Die kontrakteur kan moontlik deur die eienaar vir nalatigheid of kontrakbreuk aanspreeklik gehou word, maar teenoor die publiek/owerhede bly die eienaar verantwoordelik.

Die opkerf van plantmateriaal ter plaatse (self of deur 'n kontrakteur), bespaar vervoerkoste en is 'n bron van bruikbare organiese materiaal wat noodsaaklik is vir die maak van 'n eenvoudige kompos. Die opgekerfde plantmateriaal help om voldoende belugting in die kompos te verseker, wat voorkom dat die kompos vrot word en sleg begin ruik. Die takke wat te dik is vir opkerf, kan opgesaag word vir vuurmaakhout.

Die vorming van kompos is 'n natuurlike biologiese proses van afbreking van organiese afval (byvoorbeeld skille, eierdoppe, blare, takkies en grassnysels) deur mikroörganismes na kompos, wat weer die grond verryk en groei bevorder. Dit is deel van 'n natuurlike lewe- en doodsiklus. Die afbreek proses van organiese materiaal geskied hoofsaaklik deur bakterieë en fungi wat dit in die teenwoordigheid van suurstof afbreek na koolsuurgas, ammonium en hitte.

Sonder optimale mengsels en bestanddele, kan die proses vertraag word en die eindresultaat onbevredigend wees.

Kompos kan op verskeie maniere gemaak word. Sommige industriële prosesse is selfs anaërobies van aard. Die meeste prosesse vereis heelwat rotering om optimale prosessering te verseker. Die eenvoudige proses wat hier voorgestel word, staan bekend as: "no turn" kompos. Die groot voordeel is die lae bestuursvereistes wat hieraan verbonde is.

**Die vereistes van 'n gesonde komposhoop:**

- Suurstof: Belugting, sodat bakterieë en mikrobes wat help met die afbreek van rou afvalstowwe, daarin kan floreer.
- Water: Klammigheid is nodig vir die verrottingsproses. Hou die hoop klam, nie te nat nie.
- Koolstof : Is nodig vir energie. Hoë koolstofhoudende materiaal is gewoonlik bruin en droog, soos herfs blare en takkies. Die mikrobiologiese-oksidasie van koolstof produseer hitte. Dit beteken die material is besig om te ontbind en kompos te vorm.
- Stikstof: Is nodig vir die groei en voortplanting van organismes wat koolstof oksideer. Stikstofhoudendemateriaal is gewoonlik groen of kleurvol en is klam soos vars grassnysels, vrugte en groente skille.

Die optimale proses vind plaas wanneer die koolstof-/stikstofverhouding tussen 10:1 en 20:1 is. Die meeste plantmateriaal bevat beide koolstof en stikstof. Die verhoudings varieer egter baie. Vars gesnyde gras het 'n verhouding van 15:1 en droë herfsblare ongeveer 50:1 (verskil van spesie tot spesie).

Die meng van opgekerfde plantmateriaal en grassnysels het in die praktyk bewys dat dit bevredigende resultate in Nature's Valley opgelewer het. As 'n eenvoudige reël kan, 'n derde groen en twee derdes bruin material vermeng word, dan sal daar meer koolstof as stikstof wees, wat gewens is.

Maak die komposhoop bo-op goed dreinerende sandgrond of gepakte bakstene. Dit moet buite sig van jou bure of die pad wees. Verkieslik in ligte skaduwee, sodat dit nie te gou uitdroog nie . Te veel skaduwee sal verhoed dat genoegsame hitte die kompos bereik. Goeie dreinering is noodsaaklik omdat dit 'n aërobiese proses is. Die opgekerfte plantmateriaal word in 'n langwerpige hoop gegooi. Die fyner grassnysels word in die hoop ingewerk, soos beskikbaar. Indien baie rumateriaal beskikbaar is, begin liewer 'n tweede hoop. Die eerste hoop behoort na 6 - 12 maande kompos te wees. Die langer tyd is die prys vir die lae onderhoud. Die hoop moet verkieslik klam gehou word maar as dit in die ope is sal reënval die proses gewoonlik aan die gang hou. Draai van die komposhoop is voordelig maar met voldoende rumateriaal sal die proses voltooi kan word sonder vermenging.

**Kwelvrae oor die maak van kompos:**

- Reuke: Vrot reuke sal voorkom as voldoende rumateriaal nie beskikbaar is om die oksidasie proses te laat plaas vind nie. Grassnysels sal in die afwesigheid van rumateriaal, gou toeslaan en vrot word.
- Muise en peste: Geen huishoudelike afval soos vleis, vis en bene moet in die komposhoop gebruik word nie. As slegs plantaardige materiaal gebruik word, behoort dit geen ongewenste diere of insekte te lok nie.
- Onkruid : Onkruid kan versprei as onoordeelkundig te werk gegaan word. Nie alle saad sal deur die hitte wat vergesel word, vernietig word nie. Die nadeel van die "no-turn" proses is dat die buitenste lae nie dieselfde hitte behandeling as die kern ontvang nie en alle onkruidsaad nie vernietig word nie. Ongewenste onkruide moet nie in die komposhoop opgeneem word nie.
- Honde afval: Hierdie reste is biologies afbreekbaar en geskik vir kompos afhangende van die beplande gebruiksaanwending. Gebruik in groentetuine word nie aanbeveel nie aangesien honde soms antibiotiese medikasie gebruik.
- Braaivleis se as: Die as van braaivleisvure bevat minerale wat in die plant materiaal opgesluit was en sal dus bevorderlik wees vir die volgende generasie se groei. Meng dit verspreid in die kompos in.
- Vlieënde insekte: Klein vrugtevlieë word veral aangetrek na komposhope maar sal ontmoedig word deur die voedselreste behoorlik te bedek in die komposhoop en landboukalk kan ook oor die hoop gestrooi word om vlieë te ontmoedig.
- Komposaktiveerders: Hoendermis, beesmis, kommersiële kompos of aktiveerders sal in baie gevalle die aanvanklike proses aanhelp.

**Die vakansieganger se dilemma:**

Die eienaar wat sy eiendom hoofsaaklik in Desember benut (self of verhuuring), het een maal per jaar 'n oorskot plantmateriaal wat verwyder of verwerk moet word. Hy het egter in die meeste gevalle ook grassnysels en ander groeisels wat heel jaar verwyder moet word.

Bogenoemde eenvoudige proses bied 'n volhoubare alternatief vir die hantering van organiese afval in die Vallei.

**Gevolgtrekking:**

Kompos word algemeen aanbeveel as 'n produk wat help om die grond as groeimedium op te bou. In die sanderige toestande wat algemeen in Nature's Valley aangetref word kan dit goed benut word.

Inwoners van Nature's Valley wat beperkte toesig gedurende die jaar oor hulle eiendomme het en tog ekologies volhoubaar en koste doeltreffend wil optree, kan met die maak van hierdie eenvoudige kompos, die probleem van biologiese afval sinvol hanteer.

Francois Kruger
Omgewingskundige

**Organic waste : Perceived “cost” or “benefit” in NV**

Since development of Nature’s Valley in the early 50’s, residents would draw water from the Grootrivier for human consumption. Used water was then again released into the valley through individual sewage systems and irrigation, creating an artificial water table. This assisted re-growth of the deforested areas (just look at the road reserves), and resulted in an increased vegetative growth, needing to be annually pruned to ensure access and space to surrounding homes.

Bitou Municipality do not consider it their responsibility to remove vegetative growth from NV. It is also not a sustainable practice to transport biological decomposable material to a landfill site, on both transportation cost and ecological considerations.

Just taking a look at the amount of garden refuse hidden in the front dune, roadsides reserves and WTS and it becomes very evident that “removal” of waste is not a popular practice. It is also important to note that in terms of the country's overarching environmental legislation, NEMA (National Environmental Management Act), the so-called "cradle to grave" principle is well established, which means that the person who produces the waste is responsible for it until it has been formally recycled or disposed of at a licensed waste site. Gardening contractors could be held liable by the owners for negligence or breach of contract, but to the public/authorities it remains the owner’s responsibility thereof.

Chipping of one’s own plant material (by a contractor or self), will save on transportation/removal costs and is also a source of useful organic material which is necessary for making a simple compost. The plant material will help to ensure adequate aeration of the compost, and prevent rotting and bad smells. Branches that are too thick for chipping could be sawn and used for firewood.

The formation of compost is a natural biological process by micro-organisms. The decomposition of organic waste (eg peelings, egg shells, leaves, twigs and grass clippings), which in turn promotes enriched soil and stimulated growth is part of a natural life and death cycle. The breakdown process of organic matter occurs mainly by bacteria and fungi in the presence of oxygen, causing carbon dioxide, ammonia and heat to develop.

Without optimal mixtures, the process may be retarded and the end result will be unsatisfactory.

Compost can be made in various ways. Most processes require a lot of turning to ensure optimal processing. However, the simple process that is described below is known as "no turn" compost and the great advantage is that it is a low management method.

**The requirements of a healthy compost heap:**

- Oxygen: Aeration so that bacteria and microbes that help break down raw waste, can flourish.
- Water: Moisture is necessary for the process. Keep the heap moist - not too wet.
- Carbon: Required for energy. The carbon rich material is usually dry and brown such as autumn leaves and twigs. The microbiological oxidation of carbon produces heat. This means the material is beginning to disintegrate and form compost.
- Nitrogen : Needed for the growth and reproduction of organisms that oxidizes carbon. The nitrogenous material is usually green, colourful and as moist as fresh grass clippings.

The optimal process occurs when the carbon/nitrogen ratio is between 10:1 and 20:1. Most plant materials contain both carbon and nitrogen. However, the ratios vary greatly. Freshly cut grass has a ratio of 15:1 and dry autumn leaves about 50:1 (varying from species to species).

The mix of chipped plant material and grass clippings in the Valley have proven to be satisfactory. As a simple rule: one third green and two-thirds brown material mixed will result in more carbon than nitrogen, which is the ideal requirement.

Begin your compost heap on top of well-drained, sandy soil or packed bricks. Ideally, it should be out of sight of neighbours or from the road, preferably in a semi-shaded area so as not to dry out too quickly. Too much shade will prevent sufficient heat. Good drainage is essential because it is an aerobic process. Place the plant chippings in a rectangular heap, working in the finer grass clippings. If there is too much chipped material, rather start a second heap. The first batch should be composted with in 6 to 12 months. The heap should preferably be kept moist but if it is in the open, rainfall should keep it going. Turning the compost will be beneficial but with sufficient raw material, this should not be necessary. The longer period is the price to pay for the lower management requirements.

**Questions about making compost :**

- Smells: Rotten smells will occur if there is insufficient chipped matter to speed up the oxidation process. In the absence of chipped matter, grass clippings will soon rot.
- Mice and pests: Do not use household waste such as meat, fish and bones. Use only vegetable matter that will not attract unwanted animals and insects.
- Weeds: As not all seeds will be destroyed by heat – some weeds may germinate and spread indiscriminately. Therefore do not throw them on the compost heap. The core may be hot enough to destroy the weed seeds but due to the "no-turn" method, the outer layers do not benefit and do not become sterilised. Unfortunately some knowledge needs to be applied here.
- Dogs' waste: It is biologically degradable and suitable for composting, depending on the use of the compost. It is not recommended for use in vegetable gardens (as dogs may be taking anti-biotic meds).
- Braai-ash: Ash contains plant minerals and will be beneficial for re-growth. Evenly mix ash into your heap.
- Insects: You can repel fruit flies by properly covering your food leftovers in compost heap and lime may also be scattered on the heap to discourage flies.
- Compost-activators: Chicken manure, manure, commercial compost or activators can aid the initial process.

**The dilemma when letting homes to holiday-makers:**
The property owner who only occupies his/her property once or twice a year, will have excess vegetative growth to be removed annually before/during the holiday period and have grass clippings throughout the year to deal with. Therefore, the above process is a sustainable and alternative process to transportation/dumping of organic waste in the Valley.

**Conclusion :**
Compost is generally recommended to enrich soil as a growth medium in sandy conditions, which is commonly found in Nature's Valley, and can therefore be well utilized.

Owners of Nature's Valley can, with limited supervision of their properties throughout the year, sustain an ecologically and cost effective solution to organic waste by following these simple steps to successful composting.

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