Well-functioning home composters

In recent years, the Department of Home Economics at the Work Efficiency Institute (TTS) has compared thermal composters, regulating materials and compost accelerators and studied user's experiences on home composting by a questionnaire. The aim has been to produce information on composting, so that home composting can be made as easy as possible.

Partial deloading of the compost mass can be possible e.g. by taking off part of the wall.

The Nordic environmental labeling scheme for functional testing of composting containers was applied to the tests of the performance. These functionality tests included monitoring inside and outside temperatures, pH, oxygen and moisture content of the composting mass as well as possible generation of odour. The maturity of the compost mass was evaluated by visual assessment and laboratory analyses.

Performance of insulated composters for family use

The size of the composter is measured on the basis of the size of the household and the amount of waste it produces. If a household only composts its household waste, a 200–300 litre composter is sufficient for a family of four. For year-round use, the composter must be insulated. Not only does insulation dictate the winter use of the composter, but also the consistency of the mass to be composted and the quantity of waste to be collected. Often, small households collect so little waste that it is insufficient to keep the compost working during the winter.

The test showed remarkable differences in temperatures inside the composters. Only one composter reached the hygienisation conditions. Ventilation and humidity stayed at good level, but two composters were too wet and three were too dry.

Regulating materials

The purpose of regulating materials in compost is to improve its aeration, absorb moisture and odours and introduce carbon as an energy source for the microbes. The correct regulating material in sufficient amounts is important to the success of composting. If too little regulating material is used, the compost becomes too moist and does not receive oxygen. The composting process does not get properly started and the compost does not warm up. The need for regulating material varies depending on the moisture level, and precise instructions cannot be given. The condition of the compost must be checked regularly. At first, there may be reason to add more regulating material than the dosage instructions suggest, so that the compost mass accumulates and the compost warms up more quickly. The coarseness of the regulating material also affects the speed of composting. In a comparison of regulating materials, composts that contained commercial, peat-based regulating material composted more quickly than those that contained shredded branches and raking waste.

The composts in which regulating materials containing peat were used, were more mature than those in which materials containing wood (chaffed / cut branch) or dead leaves were used. The test showed that it is important to use enough regulating material. If the compost is too wet the composting process does not work well. The amounts of the regulating materials were 10–50 % of the amount of waste which was enough except for the lowest one.

Compost accelerators

The purpose of a compost accelerator is to speed up the composting process and improve the quality of the end-product by increasing the nutrient content of the compost. An accelerator can be particularly necessary in the composting of

garden waste which often lacks nitrogen. Adding a nitrogen-rich accelerator speeds up the composting process.

User's experiences

Most respondents were satisfied with their composters. It seemed that better knowledge on composting and a lot of enthusiasm for it are needed for good results.

Chopping up bio-waste into smaller pieces speeds up its decomposition, and shredding leaves with a lawn-mower considerably speeds up the process. Regular mixing about once a month helps and balances the composting process. ■

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Ny metod mäter växthusgaser från gödsel

Lustgas och metan kan avgå från stallgödsel i lager och från åkermark gödslad med stallgödsel. Institutet för jordbruks- och miljöteknik (JTI) i Sverige har utvecklat utrustning och en metod för att mäta sådana emissioners avgång och ska nu göra mätningar från nöt- respektive svinflytgödsel i småskaliga lager utomhus.

Utrustningen består av gödselbehållare som försluts med ett lock som kan justeras i höjdled så att man får en lämplig volym på den inneslutna luften. Vad som är lämplig volym beror till exempel på gödselegenskaper, temperatur och svämtäcke.

Koncentrationerna av växthusgaser kommer att öka under förslutningen. Genom att suga ut gasprover i början och slutet av förslutningen och mäta koncentrationerna av lustgas och metan i proverna, kan man beräkna den mängd växthusgaser som avdunstar från gödseln.

Mätningarna ska pågå under ett år, och göras i småskaliga lager placerade utomhus, med eller utan olika typer av täckning. Mätningarna startar under hösten, i en anläggning med nio behållare som nu byggs vid JTI.

- Det är viktigt att få kunskap om hur emissionerna påverkas av yttre förhållanden som temperatur och av hur gödseln lagras. För att minska ammoniakavgången från lager ska det vara stabilt svämtäcke eller annan täckning. Men vi vet inte hur utsläppen av växthusgaser påverkas av täckningen, säger FoU-ledare Lena Rodhe.

Målet är att hitta åtgärder som både begränsar ammoniakavgången och utsläppen av växthusgaser. Det är också viktigt att få bättre kunskap om avgången av växthusgaser från gödselhanteringen i det svenska jordbruket - idag används ofta schablonvärden framtagna i andra länder eftersom det är brist på svenska mätdata.

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