

ECN accepts no responsibility for the correctness and the up-to-dateness of the country data. Please mention the ECN Country Report, date of revision and the author in your quotations. Further country information in English is available at the ECN Office info@compostnetwork.info

1 Introduction on bio-waste management in Sweden

More than 200 of 290 Swedish municipalities have introduced separate collection of food waste to some extent. There is a national environmental target focusing on recycling of nutrients and recovery of energy from food waste saying that by 2018 50 percent of all food waste should be separately collected and treated by anaerobic digestion (40 percent) as well as composting (10 percent). Food waste in this respect includes food waste from households, large scale catering, restaurants and (food) retail premises. By 2014 about 38 percent of food waste was composted or treated in anaerobic digestion plants in such a way making nutrient recycling possible. The energy recovered in terms of biogas from AD plants was primarily used as fuel in the transport sector.

2 National concept/strategy on bio-waste management

2.1 Legal framework

Since 2002 it is not allowed to landfill combustible waste and since 2005 it is not allowed to landfill organic waste in Sweden. There is a landfill tax as well. Altogether, this means that recycling of organic waste is promoted and the capacity of biological treatment is increasing.

2.2 Waste management programs and strategies

The national target for food waste described above is the only clear signal for municipalities and private companies investing in capacity for biological treatment. This target is volunteer, but has been a success factor for the development of biological recycling seen so far in Sweden. There is currently an on-going discussion on making it separate collection of food waste mandatory. Avfall Sverige is expecting the Swedish government to vote for mandatory collection in a near future.

The focus on anaerobic digestion of food waste can be explained by another political target which is a fossil free transport sector by 2030. Upgraded biogas (bio-methane) is used to a large extent in the transport sector and particularly as an important fuel in the public transportation fleet.

The recently adopted Swedish food strategy is largely focusing on organic farming and food security. Digestate from anaerobic digestion of e.g. food waste and manure (called bio-fertiliser) will most likely play an important role in the strategy as it is one of few fertilisers approved for organic farming.

2.3 National standards and technical guidelines (collection, treatment and use)

No national standards for collection of biowaste. National legislation for some treatment parameters (sanitation) of certain ABP such as food waste from households is stated in Annex 4 in "Föreskrifter om ändring i Statens jordbruksverks föreskrifter (SJVFS 2006:84) om befattning med animaliska biprodukter och införsel av andra produkter, utom livsmedel, som kan sprida smittsamma sjukdomar till djur".

Use of digestate and compost as an organic fertiliser is not regulated in a specific legislation. However, in terms of nutrients and metals the same regulation as for manure (in terms of application of nutrients on farm land) and sewage sludge (in terms of application of metals) generally applies. The relevant regulation is:

- For nutrients applied on farm land using organic fertilisers (mostly manure): SJVFS 2004:62 Föreskrifter om ändring i Statens jordbruksverks föreskrifter och allmänna råd om miljöhänsyn i jordbruket vad avser växtnäring
- For metals: SNFS 1994:2 ”Kungörelse med föreskrifter om skydd för miljön, särskilt marken, när avloppsslam används i jordbruket

2.4 Quality Assurance Scheme (QAS) and National Quality Assurance Organization (NQAO)

There is no legal framework for organic fertilisers other than sewage sludge. See more information above. Avfall Sverige is the owner of the quality assurance scheme “Certifierad återvinning (Certified Re-use)” including certification rules for digestate (SPCR 120) and compost (SPCR 152). RISE – research institutes of Sweden (former SP) is the external independent control body for the certification scheme which includes external revision and issuing of certificates.

The certification scheme was launched in 1999 and during 2015 18 co-digestion plants produced quality certified digestate (called bio-fertiliser) according to SPCR 120. During the same time, there was one composting plant producing compost from green waste (park and garden waste) according to SPCR 152.

The QAS “Certifierad återvinning” is requiring the plants to have a documented control system for the entire production system as well as documented routines for audit of their suppliers. The selection of number of suppliers as well as type of suppliers for annual audit is based on risk assessment. The QAS includes limits for content of metals and visual impurities larger than 2 mm. The limit for impurities was recently changed from 0,5 weight-% of DM to 20 cm²/kg liquid digestate (less than 20 percent DM) or 60 cm²/kg solid digestate (more than 20 percent DM). The change of unit and analysis method was due to the fact that most impurities are plastic foil with low weight.

The QAS also includes demands for analysis based on type and size of the plant. ABP-regulation is included in the certification rules.

3 Source separated collection of bio-waste

According to the Swedish Environmental Protection Agency (EPA) every Swede generates 79 kg of food waste per year. In addition to food waste generated in the households every Swede also generates 14 kg/person/year in terms of food waste from restaurants and large-scale catering establishments and 3 kg/person/year of food waste from (food) retail premises. In total some 935 000 tonnes of food waste is generated in total on an annual basis.

In total about 16 percent of all household waste underwent biological treatment in 2015. This includes food waste as well as green waste.

The most common system used for source separated food waste from households is a separate bin. There are also multi-compartment bins for various fractions of waste such as packaging material, food waste and residual waste. Collection of food waste through optical sorting, where differently coloured bags are placed in the same bin, is becoming increasingly common. Paper bags for collection of food waste is still the most common type of bag, but plastic bags made of “fossil” plastic is increasing due to the popularity of the optical sorting system. Bio-based plastic bags is still not used to a great extent.

The municipalities must choose themselves how waste management is organised. In 71 percent of the municipalities the collection of waste in bins and bags is carried out by private contractors. 25 percent of municipalities carry out collection themselves, and the others use a combination of private contractors and in-house collection services. Waste treatment is either undertaken by the municipality/municipal enterprise itself, or by an external contractor, which can be another municipality, municipal enterprise or private company. The distribution between the various structures depends on the method of waste treatment.

4 Bio-waste treatment (recycling, material/energy recovery)

There are no MBT-plants in operation in Sweden.

There are about 40 composting plants in operation, whereof 11 plants registered treatment of food waste during 2015. Food waste treated in central composting plants has decreased steadily the past 10 years and most food waste is being treated in so called co-digestion plants.

During 2015 there were 35 co-digestion plants in operation, whereof most plants treated MSW. Only a few co-digestion plants are treating exclusively non-ABP such as energy crops and vegetable waste from food processing industries. In total almost 1,6 million tonnes of input material (mostly food waste, manure and other ABP) was treated using anaerobic digestion in 2015.

The average gate fee for biological treatment of food waste in 2015 was 515 SEK/tonne (anaerobic digestion) and 610 SEK/tonnes (composting).

5 Application and market

The market for biogas from anaerobic digestion is growing, but not as fast as it has been the last five years. Almost all biogas is upgraded and used as bio-methane in the transport sector. However, lately there has been an increased competition from bio-diesel (HVO) and electrical mobility which is affecting the biogas market.

Bio-fertiliser (digestate) from anaerobic digestion is a popular organic fertiliser among the Swedish farmers. An increased interest has been shown recently from the organic farming industry. There is currently no legal framework for bio-fertiliser enabling it to be marketed as a product (i.e. there is no end-of-waste criteria present), but with the help of the national QAS bio-fertiliser has achieved high credibility among the users. The plants are, however, not making any money though from the production of bio-fertiliser.

6 Expected trends and developments

Separate collection of food waste is increasing every year and we are expecting the Swedish government to make separate collection mandatory for municipalities within a few years.

Hopefully the proposed revision of the EU fertiliser directive along with the Swedish food strategy will make bio-fertiliser an even more attractive fertiliser option for organic farming. Making money from bio-fertiliser, along with revenues from biogas, would be a welcome support to anaerobic digestion plants who are generally struggling with poor profitability.

7 Contacts and sources of information

Avfall Sverige – the Swedish Waste Management Association
Baltzarsgatan 25
SE-211 36 Malmö
SWEDEN
Telephone: +46 (0) 40 35 66 00
Website: www.avfallsverige.se



Contact person:

Caroline Steinwig, Technical Adviser Biological recycling

Telephone: +46 (0) 40 35 66 23

E-mail: caroline.steinwig@avfallsverige.se

Legal framework regarding fertilisers, ABP etc.:

The Swedish Board of Agriculture, www.jordbruksverket.se

National target for food waste etc.:

The Swedish EPA, www.naturvardsverket.se

Date of revision: April 2017



About Avfall Sverige – the Swedish Waste Management Association

Avfall Sverige is the Swedish Waste Management and Recycling association with 400 members from both the public and the private waste management and recycling sectors. 99,9 per cent of the Swedish population are represented through Avfall Sverige. Avfall Sverige represents its members in dealings with politicians, other decision makers, authorities and media, both in Sweden and internationally.

Avfall Sverige's members makes sure that waste is collected and recycled in all municipalities nationally. In accordance with our vision "Zero Waste", the Swedish municipalities and public companies are the facilitators for the transition towards waste minimization and reuse.

Avfall Sverige was founded in 1947. It is a stakeholder and trade association in the field of waste management and recycling. The main activities are:

- to monitor development and safeguard member's interests
- to exchange experience
- to work with development and investigations
- to educate and disseminate knowledge
- to provide information

The office in Malmö has a staff of 17 employees. The representation office in Stockholm has a staff of 2 employees.