WASTE FARMING AS OPPORTUNITY FOR ENTREPRENEURIAL ACTIVITIES
Kriipsalu M., Kerner Ü.
Estonian University of Life Sciences

Organic waste stream will be excluded from the landfill in close future, and infrastructure for collection of organic waste established in coming years, therefore it is critical to foresee alternative biotreatment options. As planned, in Estonia local municipalities will be responsible for organizing biotreatment, which will be based on large-scale composting. Although economically beneficial, this will concentrate waste treatment into a few waste treatment sites, making a system unsustainable because of a need for massive transportation. Another alternative solution would be onsite farm-composting. By nature, composting of solid waste is similar to composting of manure, being well known to farmers, but not to solid waste companies. Farmland is also the market for end product – compost. Composting does not need everyday care and can be managed as an extra job. Farmers may have spare time between regular agricultural routines. Farmers may have equipment that can be modified to mix and shred organics. Also, there is plenty of space for storing mature compost. Compost farms can be seen as an alternative farming, providing additional income for farmers, creating jobs, and contributing to local development. Biotreatment of organic waste is the only waste management option, which can be fully organised by local authorities. By promoting onsite farm-composting, the municipalities will get a tool for controlling the cost for waste treatment. This is especially important in small and remote municipalities.

Key words: organic waste, compost farm, alternative employment.

Introduction
In Estonia, as well as in other Baltic countries, significant investments have been made to improve waste collection and disposal. Integrated waste management includes reduction, reuse, and recycling of wastes, biotreatment and incineration. The least favoured method will be disposing of the waste into secure landfills. One of the prerequisites will be source separation and separate collection of wastes. Clearly, the cost of transportation will increase. This will probably increase the demand for on-site treatment for wastes (especially organic wastes). Currently, the package recycling is highly prioritised in Estonia. The largest challenge, however, will be organic waste management. Organic waste stream will be excluded from the landfill in close future (EU…, 1999; Waste…, 2002; RTL…, 2001).

As known, the amount of organic fraction in the municipal waste is large, estimated to be 60–80% of the waste stream. To manage with such a large waste stream, it is recommended, that biological treatment shall be applied (EU…, 1999; Estivo…, 2004; Biological…, 2001). In Estonia, there is no experience in source separation of organic fraction and biotreatment of municipal wastes. There are neither facilities nor equipment to treat large volumes of organic waste. Infrastructure for collection of organic waste will be established in coming years. As planned, local municipalities will be responsible for organizing biotreatment, which will be based on large-scale windrow or reactor-composting in regional recycling centres and newly built landfills. The amounts exceeding 2000 t/y are considered as economically sound (Estivo…, 2004). Because of vast amount of organic wastes, treatment can not be established on bases of a few modern landfills only. As proposed in the paper, farmers and local rural businesses can support biotreatment of
wastes. Many farmers can possibly be employed in composting. It is the right moment to discuss if there are alternatives other than giving it to traditional waste companies.

Waste treatment and utilisation has traditionally been a business area for specialised waste companies only. By implementing composting of organic wastes, these companies, however, enter the traditional area of agriculture. Organic waste management and agriculture are well interrelated, since the ultimate aim will be to recycle organic carbon and nutrients back to soil. Low cost windrow composting seems to be the best technical solution during the initial phase of implementing biotreatment. By nature, composting of solid waste is similar to composting of manure, being well known to farmers, but not to solid waste companies. Farmland is also the market for end product — compost. Composting does not need everyday care and can be managed as an extra job. Farmers may have spare time between regular agricultural routines. Farmers may have equipment that can be modified to mix and shred organics. Usually, farmers have some equipment, tractors, front-end loaders and trucks. Also, farms have fairly good infrastructure: roads, power and water supply. Sometimes, paved storage sites may be readily available in previous collective farm sites (silage storages, abandoned farmhouses, etc.). Also, there is plenty of space for storing mature compost in farms. Compost farms can be seen as an alternative farming, providing additional income for farmers, creating jobs, and contributing to local development (Kriipsalu…, 2005).

Discussion

Do farmers accept farm-composting? So far, there is no clear will to implement farm-composting in Estonia. Waste management is strictly licensed business area, and farmers may have to apply for such licenses. Farmers have no experience in collecting or treatment of solid waste. It is reasonable to ask the waste companies to collect organic waste from customers and bring it to farmers for further composting. Obviously, farmers must be trained for making compost from waste materials. Farm-composting may attract alternative funds, e.g. funds for nature protection, waste management, establishing small businesses, or improving rural development.

Do the waste companies accept farm-composting? Waste companies may lose markets, and therefore they will oppose to certain extent. However, considering huge investments and labour demand, some job split may be beneficial. The companies will receive income from collection, but save from purchasing land and equipment for composting, and employing staff. The strongest opposition is expected from landfill operators who lose the gate fee.

Does the municipality accept farm-composting? It is much simpler to find output for sorted organic material than for commingled wastes. Once separated into fractions, one may find onsite composting attractive, instead of paying for composting services. Facilities of small scale composting have several benefits (Biological…, 2001): they require only limited approval, can be widely used, positively affect environmental awareness of people, save transportation and disposal costs, produce quality compost, and simplify the further treatment of restwaste.
Organic waste is the only waste stream that the local authority and producers can manage by themselves. Ordering services from waste collectors may result in increased disposal costs. Instead, the authorities could take the initiative, and encourage onsite composting. Composting is a labour-intensive waste treatment technology. By implementing local composting, employment may be increased. Integration of farm-composting into rural development makes it attractive from the point of view of economic development of the state.

Conclusions

Although farm-composting is an attractive alternative for centralised composting, authorities must promote it. Farm-composting can be developed in a good agreement between the Ministry of Environment and the Ministry of Agriculture. However, the role of the Ministry of Agriculture is still underestimated and not recognized. There is a risk, that farm-composting will turn into illegal dumping of waste. Mismanagement may contribute to environmental risk; however, it is certainly avoidable risk. This can be avoided by proper licensing policy and establishing quality criteria. Academic resources must be used in developing composting strategies: research with composting technologies, use of compost products, and training of farmers.

References