



OPPORTUNITIES FOR RECOVERY OF TECHNOGENIC CONTAMINATED SOIL BY USING THE NEW PRODUCTS FROM SOLID WASTE

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Abstract: The utilization of solid waste is a major task, which has undertaken ecology. The problem with them is not only its volume but also its chemical composition, and their great diversity. Declining stocks of primary energy sources and environmental problems arising from their use are just some of the causes behind the demand for alternative energy sources and develop new technologies for their utilization. Significant forest resources available to our country and our relatively well-developed agriculture identify high potential for development of green technologies for sustainable agriculture. Along with this aim and resolve problems with solid waste through their use in agriculture, namely please use them to restore polluted technogenic soil. Belonging to this group solid waste is biomass and ash from it, followed by waste from livestock.

As rapidly being depleted natural resources and polluting the environment and a geometric progression is increased methods and technologies for utilize an environmentally sound way solid waste, aimed closed cycle of materials used in manufacture.

Fertilizers are called all-natural and industrial products that are imported into the soil or in bodies of plant food for their items and substances or indirectly they have an impact on the quality and quantity of production. Depending on their chemical nature, origin, method of extraction, chemical composition, fertilizer action and others, and with a view to facilitate their learning make different classifications of fertilizers:

- According to their chemical nature fertilizers are natural and artificial (industrial);
 - According to their origin fertilizers are divided into local and commercial
 - According to their action is divided into fertilizers with direct and indirect action.
 - Depending on the solubility are divided into fast and long-acting.
 - According to their chemical composition fertilizers are divided into two major groups - organic and mineral.
 - According to information contained in the fertilizer nutrients in fertilizers may be divided into macro and micro fertilizers.
 - According to the number of nutrients contained in these fertilizer industry can be divided into simple and complex.
 - According to his physical condition fertilizers are solid, liquid and suspension.
 - According to the quantity of matter they dealt with fertilizers are divided without ballast and ballast.
 - According to the physiological effects of plant roots on the fertilizer they are divided into three groups - physiological acidic, physiologically alkaline and physiologically neutral.
- All fertilizers, regardless of which group concerns have certain chemical and physicochemical properties which largely determine the approach to them during transport, storage and soil application.


Methods and materials.

The activity of farms generate various waste - animal products, paper and cardboard packaging, and waste of an animal health business. Other animal products may be of animal carcasses, offal, feathers, feathers, feces.


As industrial waste from pulp and paper industry is separated ash from biomass that has potential for use in agriculture to improve the technogenic contaminated soils.

In the present work are discussed ashes from biomass and faeces as manure from farms, and how their utilization in agriculture as fertilizer and improve soil technogenic pollution.


SWOT Analysis Method Composting

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Accelerated process of decomposition of animal waste and turning them into fertilizer; - Manure is one of the best materials that can be added to the compost heap; - Reduce the volume of animal waste; - Compost is rich in organic matter, biogenic elements, trace elements, a wide range of enzymes, aerobic microflora; - It produce environmentally friendly products with no residual nitrites and nitrates to reduce health risk. 	<ul style="list-style-type: none"> - Animal fecal masses and vegetable waste have a very low ratio of C / N, high humidity and poor aeration are submitted. - It is necessary aeration; - For best effect particle must have a certain amount; - You must maintain a certain humidity.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Reduction of soil contamination - Improve soil structure using compost; - Reducing the need for use of industrial fertilizers; - Development of organic farming. 	<ul style="list-style-type: none"> - Problems of a legislative nature - Unauthorized collection of animal waste on irrelevant grounds - Lack of Bulgarian state standard for compost, and the lack of standard compost of liaison with European Union (EU) - Law on Waste Management does not cover animal waste; - Lack of accredited laboratories to carry out a full analysis of biodegradable waste.


SWOT Analysis growing lubri culture

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Getting product biohumus with good qualities; - Fast reproduction and development of lubri culture; - Reduce the time of treatment and receipt of manure; - Low pathogenic organisms - Rich in nutrients, vitamins, hormones and enzymes; - Reduce the amount of waste from livestock. 	<ul style="list-style-type: none"> - organisms tolerate acidity in a narrow range. pH 6.5-7.5; - Additional moisture to 80-83%; - They need special "beds"; - For t<0 C organisms die;
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Ability to process animal, vegetable, industrial and other organic waste; - Ability to use as a protein food for birds, fish and pigs and processed as a protein meal - to feed; - proteins produced by the worms and have applications in the pharmaceutical industry to produce rare drugs; - Reducing costs of mineral fertilizers; - Development of organic farming. 	<ul style="list-style-type: none"> - There are no significant threats 


SWOT analysis method of producing biogas from animal waste

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - High-energy value - 4.5-7.5 kWh/m³; - Formed by energy (RES), water and fertilizer; - Efficiency to 92%; - Biomass-after fermentation, is suitable for fertilization; - These plants are suitable for all types of livestock farms; - All organic wastes are subject to decay are suitable for the production of biogas - Reducing the cost of fertilizers; - The resulting solid residue germination of weed seeds is reduced to zero. 	<ul style="list-style-type: none"> - Biogas yield is influenced by temperature regime; - Production of biogas in the country is not yet known; - It is necessary to maintain a constant density of mass in the digester. Optimum dry matter content is 12%; - Maintain a well homogenized biomass. - Ensure optimum temperature of biomass in the digester. This requires 20-30% of heat produced to be used for maintaining the fermentation process; - Significant investment.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Possibility to be processed animal and vegetable waste, waste from food processing and wastewater treatment plants and other organic waste; - About Bulgaria provided incentives for alternative energy sources of this type, under arrangements with the EU. 	<ul style="list-style-type: none"> - There are no significant threats 

SWOT analysis method of natural maturation of manure

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Manure contains all important plant nutrients, trace elements and improve soil fertility and plant nutrition; - average 28% of the amount of imported manure turns into humus, and 72% is mineralized in available plant nutrients; - a long-term effect of industrial fertilizers; - enriched with beneficial microflora and energy material for nitrogen-fixing, ammonifying and nitrifying bacteria and other beneficial microorganisms; - Production of environmentally friendly products; 	<ul style="list-style-type: none"> - Loss of more than half of total nitrogen, much of the sulfur-containing amino acids are degraded and reduced to the SH₂, destroys organic matter and a loss of at least 30% of organic carbon; - Source of unpleasant odors and environment for the pathogen; - Take time to mature - 4-8 months; - Lost a lot of nitrogen in the periodic freezing and freezing.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Increasing yields; - Increasing efficiency of industrial fertilizer when mixed; - Reduce funds for the purchase of industrial fertilizers; - Reduce 75% the mass of animal waste. 	<ul style="list-style-type: none"> - Improper storage leads to groundwater contamination and spreading of disease; - Lack of legislation. 

SWOT analysis method of producing improvers from biomass ash

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Have a strong alkaline nature - Contain quantities of nutrients; - Compress the product is easily achievable 	<ul style="list-style-type: none"> - Low content of primary nutrients - Can only be used to improve acid soils - Necessity of combining it with other products
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Possibility to be used for treatment of acid soils as a regulator of pH - Opportunity for compressible and prevent emissions of PM - Possibility to use as a soil improvement - Possible mixed with other waste products that complement its characteristics so as to be used in more directions for the treatment of contaminated soils technogenic 	<ul style="list-style-type: none"> - Pollution by PM, if not granular 

Conclusion:

The resulting outputs of the four methods of treatment: composting, bio gas, a natural ripening, use of lubri culture and ash from biomass are suitable for use in agriculture to enrich soil with necessary nutrients and improve its properties and structure.

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Acknowledgements

The authors would like to thank the Science and Research Programme of the University of Chemical Technology and Metallurgy - Sofia (Contract 10828/01.03.11).