Relationship between Feeding Pattern and Envirmental Factors with Production of Biogas Unit

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Abstract-

BACKGROUND- Bio meth nation is proved scientific solution for reduce global warming, green house effect and good source of renewable energy. Two Bio gas units functioning at north western command HQ Mollikulam with assistance of pilisaru project. Study aim to identify relationship of bio gas production with external factors.

METHOD

Analysis

a) *Composition of feeding materials*
b) *Enhance culture media*
c) *Environmental temperature*
d) *PH valve/salinity of water effect on bio gas production*

RESULTS- Reduction of LPG consumption assumed as a indicator of bio gas production. Optimal temperature Celsius 30-32 and high culture media (wt. of cow done 4.54%) has augmentation effect on bio meth nation increase food waste Carbohydrate-CHO) may reduce metabolism of anaerobic bacteria and increase of nitrogen composition (Rotten fish) may effect on increase of bio gas production – reduction/change of source of water feeding may cause increase salinity and increase toxins in media and caused reduction bacteria density and of bio gas production

CONCLUTION

a) *Optimal maintaining of sensitive external factors is very important for proper functioning of bio gas unit.*
b) *Bio meth nation is good scientific method of organic solid waste management and production of renewable energy.*

I. BACKGROUND

Biogas is the gaseous emissions from anaerobic degradation of organic matter (from plants or animals) by a consortium of bacteria. Biogas is principally a mixture of methane (CH_4) and carbon dioxide (CO_2) along with other trace gases. Methane gas, the primary component of natural gas (98%), makes up 55-90% by volume of biogas, depending on the source of organic matter and conditions of degradation. Biogas is produced in all natural environments that have low levels of oxygen (O_2) and have degradable organic matter present. These natural sources of biogas include: aquatic sediments, wet soils, buried organic matter, animal and insect digestive tracts, and in the core of some trees. Man's activities create additional sources including landfills, waste lagoons, and waste storage structures. Atmospheric emissions of biogas from natural and man-made sources contribute to climate change due to methane's potent greenhouse gas properties. Biogas technology permits the recovery of biogas from anaerobic digestion of organic matter using sealed vessels, and makes the biogas available for use as fuel for direct heating, electrical generation or mechanical power and other uses. Biogas is often made from wastes but can be made from biomass energy feedstock's as well.

Biogas is only one of many types of biofuels, which include solid, liquid or gaseous fuels from biomass. Any combustible fuel derived from recent (non-fossil) living matter (biomass) may be considered a biofuel, including ethanol derived from plant products, biodiesel from plant or animal oils, as well as, biogas from biomass. All biofuels are produced from sources which are renewable and are included as a subset of renewable energy sources that also include energy produced from solar, hydro, tidal, wind, and geothermal sources. Biogas, like natural gas, has a low volumetric energy density compared to the liquid biofuels, ethanol and biodiesel. However, biogas may be purified to a natural gas equivalent fuel for pipeline injection and further compressed for use as a transportation fuel. Methane, the principal component in biogas, has four times the volumetric energy density of hydrogen (H_2) and is suitable for use in many types of fuel cell generators.

The research evaluates and predicts gas (methane) production from animal manure and food waste through anaerobic digestion processes. The gas produced can be used to produce electricity, to heat water for farm use, or for other business ventures that use energy. The anaerobic digestion system can be optimized by using the heat in the effluent to pre-heat the influent manure and food waste. This approach saves considerable energy. Anaerobic digestion systems can be centralized around clusters of toilet complex and correctional facilities to produce more input of manure and food waste, respectively. ?

There is no “silver bullet” in producing fuel from a sustainable energy crop. Fuel yields are limited by photosynthetic efficiency (less than 3% of solar energy is captured in even high yield crops), the efficiency of the conversion process, and the energy used in the production and conversion process (a significant cost for ethanol production). On a per acre basis, biogas production is far more efficient in capturing the energy found in energy crops. While the convenience and energy density of liquid fuels is an admirable target, if maximizing energy recovery from biomass and wastes is targeted, biogas production is the best choice. Further, even where ethanol and biodiesel production is used, biogas production from their waste products can improve the energy balance of the overall conversion process.

Bio meth nation is proved scientific solution for reduce global warming, green house effect and good source of renewable energy.bio mass energy is one of best environmental friendly renewable energy source can be implemented by low capital expenditure comparing outcome of other methods.bio mass energy production successful scientific method of carbonic degradable solid waste management remedy. It is directly reduced free emission of environment which is sole factor of global warming and green house effect, which is most sensitive environmental issue of our planet Bio gas unit functioning at north western command HQ Mullikulam from month of may 2013 with assistance of pilisaru project and bio gas unit at RABS, HQ assistance of UNDP-GEF since may, 2014. Study aim to identify relationship of bio gas production with external factors including ph value of water, environmental temperature and feeding pattern.

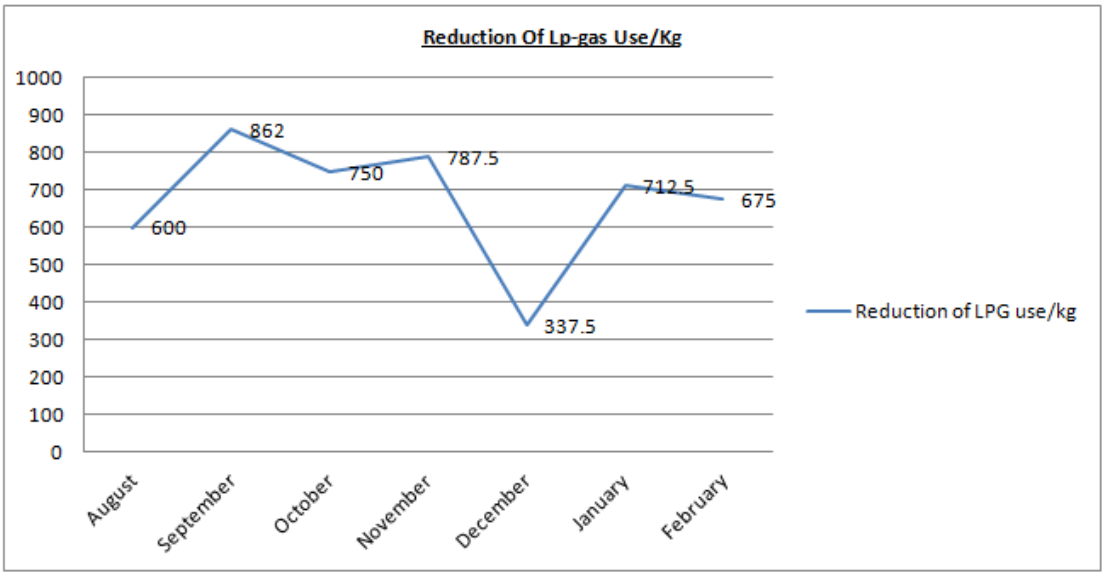
II. METHODOLOGY

Analysis

e) Composition of feeding materials
f) Enhance culture media
g) Environmental temperature
h) PH valve/salinity of water effect on bio gas production

BIO GAS UNIT AT MULLIKULUM

Month	% of culture /total solid feeding	Protein % /nitrogen component	Non Protein %/ nitrogen component	Water%	Reduction of LPG use/kg	Temperature[mean]	PH Value[litmus] water/acidity/alkaline
August	50.108%		44.340%	49.89%	600kg	33.6 C	alkaline
September	45.059%		37.163%	54.93%	862.5 kg	32.04 C	alkaline
October	47.755%	1.175%	43.207%	51.7%	750 kg	33 C	alkaline
November	60.462%	1.072%	52.202%	38.46%	787.5 kg	31 C	alkaline
December	52.486%		45.811%	47.51%	337.5 kg	30 C	alkaline
January	58.308%	3.368%	53.178%	38.32%	712.5 kg	30 C	alkaline
February	68.39%	1.445%	65.054%	30.16%	675kg	33 C	acidic



III. RESULTS

Reduction of LPG consumption assumed as an indicator of bio gas amount of bio gas production at bio gas unit at mullikulum. Optimal temperature Celsius 30-32 and high culture media (cow done] has augmentation effect on bio meth nation. Excessive Percentage increase food waste (Carbohydrate- CHO) may reduce metabolism of anaerobic bacteria and increase of optimal nitrogen composition (Rotten fish) may effect on increase of bio gas production. Alkaline media has positive effect on increase bacteria density and of bio gas production

IV. CONCLUTION

Optimal maintaining of sensitive external factors is very important for proper functioning of bio gas unit.

Bio meth nation is good scientific method of organic solid waste management, improve sustainability of natural environment, and reduce green house effect, global warming and production of renewable energy.

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