PUBLIC HEALTH PROBLEMS ARISE DURING MANAGEMENT OF WASTES WITH SPECIAL REFERENCE TO ODORS AND VECTORS

Proposed Reseach Subject

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This study tries to find mitigating measures to redue odor & vector problems arise from improper manure and waste management

There is a fact that waste water (manure) can be potential sources of :-

a - odor problems

b - Fly, mosquito & other vactor problems .

c - Water pollution .

In order to resolve the nuisance issues created by these wastes , storong & consistent mitigiting measures must be establisbed to obtain a sound waste managment policy practice .

Wastes can be the foci for vectors , odors , and water pollution .All are unacceptable public health problems .

Manure management is the key to mitigation of all the aformentioned potential enviromental health problems .

Thaough proper manure management the following can be accomplished :

a - Reduce fly production to aminimum .

b - Reduce odors .

c - Prevent surface ground water contamination .

I - Public health factors related to odors .

An acceptable and widely used definition of health of the WHO (Acomplete state of phyical , mental and social well - being , and not merely the absence of disease infirmity) .

It is difficult to correlate physical illnes and unpleasant odors . It is generally accepted that the sourse of well - being is affected in persons subjected to odrous compounds .

The National Academy of Science noted that (Unpleasant odors can. elicit nausea , vomiting headache , cause shallow breathing and coughing up set sleep , stomach and appetite , irritate eyes , nose & throat , disturb , annay & depress.

Livestock odors are coneidered to be nuisance pollutants ordors arises from decomposrtion of organic matter on the farm and the escape of objectionable gases .

A fresh manure odor is considered to be less objectionable than that emanating from anaerobically decomposing manure . This is partly due to the fact that fresh manure , even thaugh a source of large volumes of ammonia does not emanate ather gases , e.g. sulfur compounds , associated with stored manure .

A large inventory of stored manure , limited rate of air exchange , wind direction , and high animal density , contribute to the intensity of odors . Complicating factors include duration and frequency of perception in addition to intensity . Wind direction and dust problems may be another factors .

Mitigating techniques to minimize odors complaints :

1 - Conversion of some volatile compounds to less volatible on odorous material through pH control , chemical on biological conversion . For example , addition of lime controls the release of the objectionanble gas , hydrogen sulfide (H_2S) . If the pH is raised above 9.5 ,escaping hydrogen sulphate should be minimized .

2 - Inhibition of the anaerobic decomposition of manure . Examples of mechanismes to achive this gool include keeping feed lots sufficiently dry to allow oxygen permeation of the surface . Oxidation ditches or aerated lagoons are among other acceptable techinques .

3 - Use of odor control chemicals . These chemicals , act by inhibiting the formation of odorus compounds preventing their release , or making the objectionable compound . Research on commerically voilble odor control cheimcals produced largely disappointing results .

However , oxidixing agents such as potassium. permanagmente show promise as odor control chemicals Mixing this chemical with manure suppresses the relase of odorous gases .

4 - Proper design & management of livestocke operation . There are general features which must be considered . Most important factors include site selection & its relation to the prevailing winds , transportation patterns , zoning regulations and exsisting or proposed development in the area .

5 - Odor & other problems associated with manure transportation by truck through urban areas . Several trucks hauling manure would - have to go through the main city street & if no other roads are built to avoid going through the city , the urban area papulation will be exposed , even for a short ime , to possible odors emanating from manure hauling trucks . So , chemical controls of odor would , have to be considered in this case as well as covering of the trucks .

II - Public health significance of common vectors assaciated with wastes .

The following four species of flies are found to be the most numerous & pestiferous Musca domestica or (common house fly) this fly is known to be a mechanical vector & spreads diesease by physically conveying bacteria from one point to another .

Stomaxys calcitrans (Stable fly) is a blood sucking fly causes allergic reactions to secandry infections .

Muscine sp. (False stable fly) can be produced in large numbers & has little public health impartance .

Caliphoridae sp. (blowflie) it tends to annay people and is known to be a mechanical vector .

Mitigating techniques taken for common vectors associated with wastes .

Flies need three factors : food , maisture and warmth .

If manure is improperly handled , stored or processed , these factors can easily be found in it & produce large numbers of flies .

Through proper integrated manure management fly production can be reduced to a minimum .

1 - If we eleminate a fly's food the maisture in his breeding media , or his wormth we have broken the fly cycle .

2 - In addition to mannure management , one area that should receive particular attention as a patential fly breeding site is the sump area of the fluch out dairy . It was found that this area was agreater and more continous for fly development .

The area of fly development were where the manure surged over the sump facilities or backed up between the alley lanes , or which run over their respective sides .

3 - These problems could be avoided by adequate side walls , larger pits and pit entrances , and adequate volumes of water or increased water velocity .

These kinds of physical arrangement , coupled with the use of other biological and chemicals give us a dairy envirment where rest problems cen be kept to a minimum .

4 - Insecticides treatment of manure collection for larval control and adult fly control as a routine program in place of manure removal , has rarly given satisfactory results.

5 - If the dairy staff can practice integrated pest management in their manure handling practice , as well as watch for waste feed , silage, contaminated calf beddling and after birth materials the dairy may become an accepted neighbour in an urbun envirenment .

6 - In an enclosed system all handled manure should be covered to minimize vector problems through neighbouring urban areas.

Purpose of this Study:

This study tries to find mitigating measures to reduce odour and vector problems arise from improper manure and waste management.

The importance of this study in both Egypt & Germany:

This study is very important for improving sanitary methods used in management of wastes to keep animal health which inturn increase their production.