

ANIMAL PRODUCTION WITH EM

by Mrs. B. Karanja and Ouma

Introduction

Animal husbandry is an area of agriculture that causes problems of pollution, diseases and pests. In addition, this aspect of food production is associated with religious and cultural concepts. Hence, animal enterprises need to be carried out under hygienic conditions, ensuring a high productivity per unit of investment.

EM technology offers much scope in this aspect, with proven results in many countries and locations. The benefits arise from the fact that EM not only increases productivity, but also animal health and overcomes problems of smell and pollution.

In using EM in animal production enterprises, there are some basic guidelines. These are as follows: -

1. EM should not be used as a chemical, medicine or disinfectant.
2. EM is a living entity and thus conditions must be conducive for its activation.
3. Animals being given EM should not be reared under stress conditions.
4. The activity of EM is distinct and thus a whole shed needs to be utilized for EM. It is not advisable to use a part of the animal shed for testing EM, as the beneficial influence of EM will be negated.

EM has a multitude of beneficial effects in animal production. These could be listed as follows: -

1. EM suppresses foul odour in livestock sheds and septic tanks
2. EM decreases flies, ticks and other harmful insect populations

3. EM enhances animal health.
4. EM reduces the stress factor in animals and enhances immunity against diseases.
5. EM increases the quality of animal products and enhances shelf life.
6. EM improves animal fecundity.
7. EM when fed to animals produces manure of high quality.
8. EM lowers the requirements of regular medicines, antibiotics and disinfectants in animal husbandry.

GENERAL FEATURES OF USING EM IN ANIMAL PRODUCTION:

The features below act as standards for all aspects of animal husbandry. The general features of EM that ensures success in animal husbandry are as follows:-

1. EM bokashi could be fed as an additive to the feed
2. EM could be mixed into drinking water
3. EM extended solution could be sprayed within the animal shed
4. EM Bokashi should be spread on the bedding used for animals
5. EM in septic tanks collecting animal wastes reduces odour and flies.

Bokashi as a feed ingredient

Bokashi made with feed ingredients such as rice bran is a good additive to animal feed. This improves the intestinal microflora. Hence the digestive process is stimulated and the health of animals is improved. The foul odour of fecal matter is suppressed.

The rate of addition of bokashi into feed is 1 – 5%. Bokashi could also be sprinkled onto the feed daily. Some guidelines of the addition of bokashi to animal feed are as follows: -

Type of product	Stage of growth	Percentage of Bokashi in feed
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Chicken – egg production	Chick	1 - 3%
	Layer	1%
Chicken – meat production	Early growth	2 – 3%
	Final growth stage	1%
Swine	Breeding	1%
	Piglets	1 – 3%
	Piglets for meat	1%
	Adults for meat	0.5%
Beef cattle	Calf	10 – 20g per day with milk
	Heifer	30 – 50 g per day
	Adult	30 – 50 g per day
Milk cattle	Calf	10 – 20g per day with milk
	Adult	50 – 100g per day

If EM solution is used, a dilute solution (1: 100) could be sprayed onto feed prior to feeding. **These rates are guidelines for feeding and not absolute recommendations.**

EM in water

The rate of application of EM into drinking water is a dilution ranging from

1: 1000 to 1: 5000. The higher dilution is for very young animals. However, do not introduce EM directly to adult animals as it may cause stress problems. Hence begin the programme of supplementing EM in water from early stages of the life cycle. Furthermore, the EM should be added to water daily, after changing the water in drinking troughs.

Never supply EM to water that has been in the trough for a long period of time!

Spraying of EM

The foul odours associated with the animal faecal matter are due to harmful microbes. These produce substances such as ammonia and hydrogen sulphide.

The spraying of EM suppresses the development of these harmful microbes, and thereby enhances the hygienic conditions of the livestock barns and also that of animals. The spraying of EM to barns could be carried out with extended EM. This EM is prepared as follows: -

Ingredients	Water*	100 litres
	Molasses	1 litre (5 kg of brown sugar could also be used)
	EM	1 litre

***Well water is preferred as chlorine could affect the development of EM**

Preparation

Blend the molasses with water until completely dissolved.

Warm water (40C) could be used to accelerate dilution. Add the EM and pour into a plastic container that could be closed firmly. Never use a glass container. Close tightly, and store in a warm place (25 – 30C) away from sunlight. Release gas occasionally. The EM is ready for use in 10 – 14 days, when the pH drops below 4.0

THIS EXTENDED EM MUST BE USED WITHIN 30 DAYS!

ANNEX 1 : WORKSHOP PROGRAMME

DATE	TIME	ACTIVITY	RESPONSIBLE PERSON
21-11-04	2.00 – 6.00 pm	Arrival and introduction	Ann Wambui
22-11-04	8.00 – 10.30 am	Tour of training centre	Kimaita

22.11.04	10.30 – 11.00 am	Break	
22.11.04	11.00 – 12.00 noon	Official opening	Ann Wambui
22.11.04	12 noon – 1.00 pm	EM in Agriculture	P. N. Chandi
22.11.04	1.00 – 2.00 pm	Lunch Break	
22.11.04	2.00 – 4.00 pm	EM in Agriculture (con't)	P. N. Chandi
22.11.04	4.00 – 4.30 pm	Break	
22.11.04	4.30 – 5.30 pm	Principal micro-organisms in EM	David Wanjala
23.11.04	8.30 – 10.30 am	Economics of EM	Mary Watela
23.11.04	10.30 – 11.00 am	Break	
23.11.04	11.00 – 1.00 pm	Application of EM	John Munene
23.11.04	1:00 –2:00 pm	Lunch Break	
23.11.04	2.00 – 4.00 pm	Application of EM (Con't)	John Munene
23.11.04	4.00 – 4.30 pm	Break	
23.11.04	4.30 – 5.30 pm	Practical demonstration on application	John Munene & Kimaita
24.11.04	9.00 am – 5.30 pm	Field Excursion	Ann Wambui
25.11.04	8.30 – 10.30 am	Review of field visit	S. K. Muhunyu
25.11.04	10.30 – 1.00 pm	Crop Production with EM	Peter Mwaura
25.11.04	1.00 – 2.00 pm	Lunch Break	
25.11.04	2.00 – 4.30 pm	Animal Production with EM	Mrs. B. Karanja
25.11.04	4.30 – 5.00 pm	Animal Production with EM (Contd.)	Ouma Joe
26.11.04	8.00 – 10.30 am	Animal Management with EM	Simon Mburu
26.11.04	10.30 – 11.00 am	Break	
26.11.04	11.00 am – 12 noon	Environmental Management with EM	John Mwaura
26.11.04	12 noon – 1.00 pm	Workshop Evaluation	S. K. Muhunyu
26.11.04	1.00 – 2.00 pm	Lunch break	
26.11.04	2.00 pm – 3.00 pm	Closing Ceremony	P. N. Chandi

WORKSHOP PARTICIPANTS

No.	NAME	ADDRESS	COUNTRY
1	M/S. ANN WAMBUI	NECOFA KENYA P.O. BOX 160, MOLO 20106	KENYA

		TEL: 0723-224986	
2	MR. JOHN WACHIRA	BORA FARM P.O. BOX 131, ELDORET TEL: 0721-930489	KENYA
3	M/S. PROSSY NAMUBIRU	ST. LAWRENCE SCHOOL P.O. BOX 14, NAMGONGO TEL: 077329926	UGANDA
4	MR. PAUL WAMBUGU	NECOFA KENYA P.O. BOX 11, KITENGELA TEL: 0722-603015	KENYA
5	MR. SAMUEL MUHUNYU	NECOFA KENYA P.O. BOX 160, MOLO 20106 TEL: 0722-647112	KENYA
6	M/S. PRISCILLAH MISHI	MINISTRY OF AGRICULTURE P.O. BOX 19, KILIFI TEL: 0733-955565	KENYA
7	MR. PATRICK OUGO	C-MAD P.O. BOX 90, RONGO TEL: 0733-905100	KENYA
8	MS. ZUHURA CHITANDA	ARECON, P.O. BOX 416, ARUSHA TEL: 0744-342128	TANZANIA
9	MR. ABDALLA MCHETI	KIHATA P.O. BOX 370, MOROGORO	TANZANIA
10	MR. PAUL MLINDWA	PELUM P.O. BOX 2405, KAMPALA TEL: 0774-65442	UGANDA

ANNEX: IV WORKSHOP EVALUATION

1. Did the workshop meet your expectations?

Very	+2	+1	0	-1	-2	Not At All
Much	7	2	1			

2. Did you gain new knowledge and information beneficial to your daily activities?

Very	+2	+1	0	-1	-2	Not At All
Much	8	2				

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3. How do you rate the general organization of the workshop under the responsibility of the country co-ordinator in Kenya?

Efficient	+2	+1	0	-1	-2	Very Poor
	9	1				

4. How did you feel during your stay in Embu?

Very Happy	+2	+1	0	-1	-2	Unhappy
	7	1	2			

5. Do you think that the most relevant issues were addressed?

	+2	+1	0	-1	-2	No
Yes	9	1				

6. Do you think that your contributions and ideas were considered by the moderator

and other participants?

	+2	+1	0	-1	-2	No
Yes	7	3				

7. How do you rate presentation/activities in terms of delivery and relevance?

ACTIVITY	+2	+1	0	-1	-2
Tour of EM centre	6	3	1		

EM in Agriculture	7	3			
Principal Microorganisms in EM	3	7			
Economics of EM	6	4			
Application of EM	7	2	1		
Practical demonstration on application	8	2			
Field Excursion	9	1			
Crop Production with EM	5	4	1		
Animal Production with EM	4	6			
Animal Management with EM	7	2	1		

8. How do you rate the duration of the training?

Too long	Long	Right	Short	Too short
		3	2	5

9. How do you rate the accommodation and meals in the hotel?

Very Appropriate	+2	+1	0	-1	-2	Very Poor
	3	6	1			

10. Did you have time to attend to your personal needs?

Very Much	+2	+1	0	-1	-2	Very Little
		1	2	3	4	

11. How do you rate co-operation and participation by the other participants?

Very Good	+2	+1	0-	-1	-2	Poor
	7	3				

12. What is your general rating of the workshop?

Very Beneficial	Beneficial	Just OK	Not Beneficial
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