

Assistance Technology of Livestock Development Area in East Nusa Tenggara

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ABSTRACT

Technological mentoring for beef cattle production had been held on East Nusa Tenggara from 2015 to 2016 on four districts: (1) South Timor Tengah; (2) North Timor Tengah; (3) Belu; and (4) Malaka. Study object are: (1) farmers raising livestock and cattle, (2) business partners, and (3) local governments as policy makers in overcoming problems in the livestock subsector. Mentoring in four district is not the same, because it is need to be adjusted for each of area demand and farmer condition with several steps: (1) livestock technical training; (2) technological innovation demonstration through demonstration plot, including pilot unit for disseminating technology; (3) initiators and facilitators group meetings; and (4) dissemination media dissemination in the form of posters. There had been 13 farmer groups with 20 to 25 people each in nine villages from seven sub-districts originally from four districts following mentoring program for 2 years. The More area can be handled, the better because it will imply more farmer to adopt technology for beef cattle production.

Keywords: Livestock area, Mentoring, East Nusa Tenggara

INTRODUCTION

Achieving self-sufficiency in staple food, such as rice, corn and soya, and increasing the production of meat and sugar are some of strategic targets made by the Ministry of Agriculture 2015-2019 as stipulated in the Strategy Plan of Mining 2015-2019 (Ministry of Agriculture, 2015). The increase of meat and livestock product is conducted based on regional approach community development which called livestock area. Livestock production and health area is the area which specifically intended for livestock and animal health activities in performing functions (breeding, aquaculture, feeding, animal health and veterinary and post-harvest health) (Directorate General of Animal Husbandry and Animal Health, 2015).

Directorate General of Livestock Services in Indonesia proclaimed based on Rubianti et al (2013) that beef self-sufficiency program since 2014. This program predicted that at 2014, 90% demand will be supplied by domestic production and 10% will be imported from abroad. The total of cattle population in East Nusa Tenggara was 814,450,000 heads in 2013. Based on this data, East Nusa Tenggara is still able to contribute 2.28% national demand for meat (Rubianti, et al., 2013).

Cattle population was 814,450 heads in East Nusa Tenggara (East Nusa Tenggara Central Bureau of Statistic, 2013), with the highest in West Timor at 73.95% (Agricultural Statistics of NTT, 2012). Cattle population statistic in East Nusa Tenggara indicate good development although still not optimal because of fluctuating feed availability and high mortality of calf

(>30%). Technological mentoring aims to create model of community farm area based on technological innovation in a sustainable and location specific in East Nusa Tenggara. The program is expected to provide broad benefits such as: (1) farmers raising livestock and cattle, (2) business partners, and (3) local governments as policy makers in overcoming problems in the livestock subsector. Optimal impact is expected to be achieved with the development of cow breeding technology innovation in the area of sustainable development of community farms and location specific. In the long run, there will be an increase of centers of community livestock areas based on technological innovations that affect the increase of livestock productivity and then impact on regional income

MATERIALS AND METHOD

The investigation used field study approach on development of community livestock area based on technological innovation intervention in the form of technological assistance through the participation of farmer groups that are participatory. Technological innovations is applied in technological assistance are cattle, forages, and cowshed. Matrix below explains technological innovation

Tabel 1. Matrix of technological innovation applied in technological assistance d

Technological innovations	Activities
Breeding	<ul style="list-style-type: none"> • Production system improvement using communal cowshed
Fattening	<ul style="list-style-type: none"> • Production system improvement using communal cowshed • Using 60% forage and 40% legume or local concentrate as feed • Utilization of feces as compos and biogas
Feed quality improvement using introduction of tree and herbaceous legume	<ul style="list-style-type: none"> • Tree and herbaceous legume planting on communal garden as feed and seed source • Feed preservation using silage and hay
Specific location local concentrate introduction (agricultural byproduct)	<ul style="list-style-type: none"> • Local concentrate utilization from agricultural byproduct
Dissemination	<ul style="list-style-type: none"> • Development using information media (poster)

Study location is in four districts: (1) South Timor Tengah; (2) North Timor Tengah; (3) Belu; and (4) Malaka. Group of farmers involved are 1 to 2 farmer groups in each district or area of agricultural development. Each farmer group consists of 20-25 people. Selection of cooperative farmers criteria that is willing to make technological innovations that will be introduced, have cattle and land, and willing to follow the recommended technological innovation

RESULTS AND DISCUSSION

Cattle population growth in Nusa Tenggara

Cattle population in certain area represents livestock potentiality which is able to be developed. Cattle growth on East Nusa Tenggara in last five years can be seen in Table 1.

Table 2. Cattle growth on East Nusa Tenggara in last five years

No	Livestock	Population/Year (head)				
		2011	2012	2013	2014	2015
1	Cow	778,665	814,450	823,134	865,731	899,577
2	Buffalo	150,038	152,449	133,786	134,567	141,075
3	Horse	105,981	109,160	111,047	112,948	111,047
4	Goat/Sheep	615,391	638,938	656,242	674,012	691,852
6	Pig	1,699,705	1,724,316	1,739,481	1,755,058	1,812,449
	Total	3,349,780	3,439,313	3,463,690	3,542,316	3,656,000

Source: East Nusa Tenggara in Number, 2015

Table 2 show that cattle population has positive improvement although it is still not optimum for all of livestock which is caused by the high calf mortality as the result of non-intensive rearing on local farmer. Health issue is one of big problems in non-intensive rearing while rearing period need to be less than 5 years so it insists to have responsible mid-term management.

Local farmer contribute at least 70% to fulfill national meat demand. It is consist of 10.7 million beef cattle, 2.2 million buffalo, and 0.3 million dairy cows (Directorate General of Livestock Services, 2008). Each of farmers has 2 to 6 cattle. With limited cattle owned, it can be imagined that technology become hard to adopted by farmer.

Cattle productivity is still low because farmer is still not understand feed technology using abundant feed production in rainy season and also still not does legume multiplication for both tree and herbaceous legume. Because of that, direct mentoring is significantly affected with technological application on cattle farming then lastly affected farmer group member to become more productive.

Technology introduction via mentoring on livestock development area

Mentoring in livestock development area is done by Food Crops Research Institute East Nusa Tenggara with several steps: (1) coordination with local government and synchronizing mentoring activities with related local governments; (2) Expert source discussion and training that researchers and extension workers can be invited as speakers in the implementation of local government activities related to the development of livestock areas, livestock groups and stakeholders meeting in the region; (3) demonstration of technological innovations through demonstration plots, which are pilot units for disseminating technology; (4) initiators and facilitators in discussion activities; (5) providers of dissemination / extension materials. Mentoring in four districts is not the same, because it is need to be adjusted for each of area demand and farmer condition (Table 3).

Table 3. Technology mentoring on four district, South Timor Tengah, North Timor Tengah, Belu, and Malaka

District	Village	Technology Support	Total Farmer Group	Mentoring Period	
South Timor Tengah	Mollo/Binaus and Eonbesi	<ul style="list-style-type: none"> • Bokashi and silage workshop • Introduction of feed bank research institute model • Publication of dissemination media (poster) 	2	2015 2016	-
North Timor Tengah	<ul style="list-style-type: none"> • Noemuti/Kiuola • Insana/Oenbit, Lanaus • East Miomafo /Taekas 	<ul style="list-style-type: none"> • Tarramba seeding inside kokeran workshop • Plot demonstration of Tarramba plant in 22 hectare area • Cattle Manure utilization for vegetable • <i>Leucaena leucocephala</i> tarramba introduction in collected farm (1 to 2 hectare) • Communal cowshed and feed bank research institute model introduction • Concentrate introduction (rice bran) as fattening feed for beef cattle • Publication of dissemination media (poster) 	8	2015 2016	-
Belu	West Tasifeto / Bakustulama	<ul style="list-style-type: none"> • Introduction of feed bank research institute model • Cattle Manure utilization for vegetable • Publication of dissemination media (poster) 	1	2016	
Malaka	<ul style="list-style-type: none"> • Middle Malaka / Kakaniuk • Weliman/Leunklot 	<ul style="list-style-type: none"> • <i>Leucaena leucocephala</i> tarramba introduction in collected farm (2 hectare) • Communal cowshed and feed bank research institute model introduction • Publication of dissemination media (poster) 	2	2015 2016	-

Source: Processed primary data 2017

Based on Table 3, there had been 13 farmer groups with 20 to 25 people each in nine villages from seven sub-districts originally from four districts following mentoring program for 2 years. The most support and total farmer group involved mentoring can be seen in South Timor Tengah. Location specific based technological intervention is used on mentoring farmer group in order to support meat sufficient program in North Nusa Tenggara with imply on the increase of interest on each stage indicate with production improvement of cattle.

CONCLUSION

Technological assistance in the four districts is not the same, depending on the needs of the farmers group: (1) livestock technical training; (2) technological innovation demonstration through demonstration plot, including pilot unit for disseminating technology; (3) initiators and facilitators group meetings; and (4) dissemination media dissemination in the form of posters. There had been 13 farmer groups with 20 to 25 people each in nine villages from seven sub-districts originally from four districts following mentoring program for 2 years. The more area can be handled, the better because it will imply more farmer to adopt technology for beef cattle production.

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