Evaluation of Intensified Natural Breeding Program of Buffaloes Using Groups Approach in Sijunjung District West Sumatra

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Abstract: The purpose of this study was to (1) analyze the INKA program and (2) problems related to the program in buffalo livestock groups in Sijunjung District. Primary data collection takes place from November to December 2017 toward 92 farmers who are taken by a census. Analysis of the research used qualitative and quantitative descriptive methods. The results of the study showed an increase of 81 buffaloes, the highest being in the Kubelu Saiyo farmer group, which was 48.84%. While the birth rate in 2016 was the highest in the Kubelu Saiyo farmer group 31.82% and in 2017 the Batu Gadang farmer group reached 44.44%. Mortality rate is 1.43% in 2016 and 0.74% in 2017. In general, the age characteristics of breeders in productive age (95.7%), male (65.22%), with primary school education level (81.52%), and the main job as a farmer (97.83%) with the experience of farming > 10 years (88.04%). Business profile of ranchers has buffaloes as much as 3-4 tail (46.74%) and land area category of 0.5 to 2 ha (82.61%). the problem faced is the character of the given stud is wild and requires time to adapt. Monitoring of the program needs to be improved because mentoring only runs at the beginning of the program. The number of members of the Muaro Sumpur farmer group precisely declined (56.25%). The target to increase the productivity of Buffalo has not been optimal. So the implementation of the INKA program through farmer groups in the Sijunjung District still needs improvement.
Keywords: evaluation, implementation, INKA program, buffalo livestock, Sijunjung District.

INTRODUCTION

West Sumatra Province is one of the provinces that received assistance for the development of buffaloes through the 2015 APBN fund because it has sufficient resources, both human resources (HR) and natural resources (SDA) which should be able to be used to support the development of buffalo livestock in the region. This assistance is more focused on developing buffalo livestock through the INKA Program. This can be seen from the lack of quality males who are used as pemacek both in natural breeding and Artificial Insemination [1] so that the assistance of pemacek in this region is an appropriate and strategic step in order to avoid high inbreeding and decrease in seed quality.

The INKA program was developed in seven farmer groups in two districts in West Sumatra Province, consisting namely for of two farmer groups in Pasaman Regency and five farmer groups in Sijunjung District. Each farmer group will get five pemacek, one semi-permanent cage and one package of medicines. Distribution of pemacek for Sijunjung District is located in four sub-districts, including two farmer groups in Sumpur Kudus District namely Kenagarian Sisawah Jorong Rumbai and Sibolin, a farmer group in Sijunjung District Kenagarian Durian Gadang Jorong Pinang, a farmer group in IV Nagari Kenagarian Muaro Bodi Jorong Tanjung Pauh and one farmer group in Koto VII Kenagarian Padang Laweh Jorong Taratak Betung [2].

Based on the initial interview from one of the farmer groups, the INKA program provides positive benefits for the acceleration of the development of buffalo livestock, both for the members of the farmer group itself and for farmers who are around the recipient farmer groups. This can be seen from being increased the birth rate which initially only 20%, which was marked by the increasing number of buffalo livestock populations from 188 buffaloes before the INKA program became 269 buffaloes after the INKA program (43.09%) or there was an increase in the birth rate> 20%. However, the implementation of the INKA program in the field has not received special attention from Dinas Peternakan dan Perikanan Kabupaten Sijunjung, the central government or other stakeholders.

Considering all the efforts that have been made for this program, ranging from planning, program

implementation and allocated funds, an assessment of the implementation of the INKA Program activities in Sijunjung District must be carried out to determine the extent to which the program's success indicators are achieved so that the use of all these resources is not in vain. According to the Dinas Peternakan dan Kesehatan Hewan Provinsi Sumatera Barat in the 2015 INKA program implementation guidelines, indicators of the success of the INKA program are assessed from the achievement of technical aspects, institutional aspects, and business aspects. Therefore, a study was conducted aimed at analyzing the INKA program (intensification of natural breeding) and problems in implementation of the INKA program in Sijunjung District.

Intensification of Natural Breeding (INKA) is an effort to increase the population of cattle and buffaloes conducted through the use and distribution of selected pemacek from local cattle / buffaloes with three principles of breeding management, namely (1) breeding of cage models individual (intensive), (2) breeding of group cage models (semi-intensive), and (3) breeding of models pasture (extensive). pemacek used is derived from the results of a simple selection, which is based on the assessment of body performance, is more than two years old and is free from reproductive diseases [3].

RESEARCH METHODS

Time and location of research

This research was carried out from November to December 2017. The location of the study covered five farmer groups who were recipients of the INKA program which were spread across four sub-districts in Sijunjung District.

Data types and data collection techniques

The types of data collected are primary data and secondary data. Primary data includes program implementation procedures, characteristics of farmer groups, buffalo livestock populations, and other data related to research. The primary data collection method is carried out by survey method through direct interviews with respondents using questionnaire instruments. Secondary data is obtained from various agencies such as Dinas Peternakan, Badan Pusat Statistik, and other relevant agencies.

DATA ANALYSIS

Data from interviews such as: program socialization, selection of prospective beneficiaries, procurement process, assistance, program assistance and implementation monitoring were analyzed in qualitative descriptive. Data on increasing livestock population, number of farmers, and characteristics of respondents and livestock productivity were analyzed quantitatively. where according to Toelihere [4],

$$\text{Calving rate (\%)} = \frac{\text{Number of calving in population a year}}{\text{Number of females productive in the population a year}} \times 100$$

according to Dania *et al*. [8],

$$\text{Mortality rate (\%)} = \frac{\text{Number of mortality a year}}{\text{Total a livestock population in a year}} \times 100$$

Respondents. The method used in this study is by census method. The number of the sample population is presented in Table 1.

RESULTS AND DISCUSSION

The general condition of the research area. Sijunjung Regency has an area of 3,134.21 Km^2 or around 7.41 percent of the area of West Sumatra [5].

Sijunjung Regency consists of eight sub-districts and has around eight large and small rivers. The topographic conditions of Sijunjung Regency vary in each region between hilly, bumpy and plains. Some sub-districts are on steep and very steep land (hilly area). Regional morphology is divided into three parts, namely steep in the west and east, plains in part of the middle and sloping hills that lie between them.

Table-1: Number of Research Respondents

Farmer Group Name	Number of Members	Farmers Group Address		
		Jorong	Nagari	Kecamatan
Kubelu Saiyo	23	Pinang	Durian Gadang	Sijunjung
Lagundi Saiyo	24	Tj. Pauh	Muaro Bodi	IV Nagari
Batu Gadang	11	Taratak Betung	Padang Laweh	Koto VII
Muaro Sumpur	16	Sibolin	Sisawah	Sumpur Kudus
Cahaya Gumelang	18	Rumbai	Sisawah	Sumpur Kudus
Total	92			

Source : Dinas Peternakan dan Perikanan Kabupaten Sijunjung [5].

Population condition. Sijunjung Regency in 2016 totaled 226,290 people consisting of 113,300 men and 112,990 women. Density in 2016 reached 72 people / km^2 with the average population of households is four people. Population density is quite diverse with the highest population density located in Koto VII District which is 259 people / Km^2 and the lowest is in Sumpur Kudus District with 44 people / Km^2 [5].

Farms conditions in Sijunjung district. The population of cattle in Sijunjung Regency in 2016 was quite high, namely 18,033 head, followed by 15,307 buffaloes, 11,639 head of goats, and 1,907 head of sheep.

Table-2: Ruminant Livestock Population in Sijunjung District

Sub-district	Beef Cattle	Buffalo	Goat	Sheep
Kamang Baru	3,251	2,298	1,258	-
Tanjung Gadang	1,357	1,729	972	188
Sijunjung	3,806	3,577	2,586	704
Lubuk Tarok	813	703	919	640
IV Nagari	901	1,204	1,334	-
Kupitan	1,813	985	1,481	-
Koto VII	4,252	3,680	1,626	351
Sumpur Kudus	1,840	1,131	1,463	24
Total	18,033	15,307	11,639	1,907

Source : Badan Pusat Statistik Kabupaten Sijunjung [5].

History of the establishment of the farmer group

Table-3: Characteristics of Farmer Groups

Name of Farmer Group	Since	Long-Standing (Year)	Number of Group Members	Class of Farmer Group	Group Activity
Kubelu Saiyo	2009	8	24	Pemula	Meeting every month
Lagundi Saiyo	1980	37	24	Pemula	meeting every month
Batu Gadang	2013	4	12	Pemula	meeting every month
Muaro Sumpur	1985	32	25	Pemula	meeting every month
Cahaya Gumelang	2011	6	18	Pemula	meeting every month

Source: Research Results (2017).

The results of the study show that the process of forming farmer groups is generally carried out by the group itself and has been formed before the existence of the program. Farmer groups that receive assistance pemacek in Sijunjung Regency consist of five farmer groups. The classification of each farmer group is still categorized in the beginner class farmer group, which is the lowest class with a value of 0-250 (learning class), whose assessment is based on the ability of farmer groups according to the Regulations of Menteri Pertanian No. 82/Permentan/OT.140/2013 Regarding Guidelines for the Development of Farmer Groups and Joint Farmers Groups. Group meetings, according to Wahyuni [6], are a forum for communication between farmers, as well as a forum for communication between farmers and related institutions in the process of technology transfer. Farmer groups are an organization, which must have a clear organizational structure. The organizational structure in the farmer group receiving the INKA program consists of group leaders, secretaries, and treasurers.

Characteristics of Respondents

Characteristics of Respondents

Table-3: Characteristics of Respondents

Category	Kubelu Saiyo	Lagundi Saiyo	Batu Gadang	Muaro Sumpur	Cahaya Gumelang
a. Age					
-15-64	95,65	100	81,82	93,75	100
- > 64	4,35	-	18,18	6,25	-
b. Gender					
- Male	56,5	83,3	90,9	93,8	11,1
- Female	43,48	16,67	9,09	6,25	88,89
c. Education					
- Primary school	73,9	87,5	81,8	93,8	72,2
- Junior high school	21,7	8,3	9,1	6,3	11,1
- Senior High School	4,35	4,17	9,09	-	11,11
- Bachelor degree	-	-	-	-	5,6
d. The main job					
- Farmer	100	100	90,91	100	94,44
- Government	-	-	-	-	5,56
employees	-	-	9,09	-	-
- Entrepreneur					
e. Livestock Ownership					
- 1-2	86,86	41,67	-	68,75	27,78
- 3-4	13,04	54,17	100	18,75	72,22
- > 4	-	4,17	-	12,5	-
d. Breeding experience					
- ≤ 10 tahun	8,7	-	-	-	50
- > 10 tahun	91,3	100	100	100	50
f. Land area					
- < 0,5	13,04	16,67	36,36	12,50	16,67
- 0,5-2	86,96	83,33	63,64	87,50	83,33

Source: Research Results (2017).

In general, the age characteristics of breeders aged 15-64 years (95.7%), male (65.22%), with primary school education level (81.52%), and the main occupation as farmers (97.83%) with> 10 years of breeding experience (88.04%). based on the profile of the breeders business, there are 3-4 buffaloes (46.74%) and the land area is 0.5-2 ha (82.61%).

The process of implementing INKA program. Program socialization. Socialization is carried out by Dinas Peternakan dan Kesehatan Hewan Sumatera Barat Province together with the District / City agency towards the relevant target groups and stakeholders that are carried out directly. Socialization is carried out through coordination and coaching in order to improve understanding of the implementation patterns carried out by the Province and District / City. Direct socialization was carried out to farmer groups through extension workers.

Selection of prospective recipients of INKA program assistance. Based on interviews with farmer groups. it was found that the criteria for prospective farmer groups in general who could receive the INKA program in accordance with the technical guidelines were as follows: 1) The farmer group had been established for more than three years; 2) Have not received the same assistance in the past two years; 3) The number of group members is at least 12 people; 4) Minimum age of group members is 17 years; 5) Members are not family members; 6) Farmer groups have clear bookkeeping (administrative completeness) and organizational structure; 7) Able and responsible in carrying out the INKA program.

The process of procurement pemacek. The procurement process of pemacek is accompanied by the head of the Regency technical team. field extension workers. along with the cattle procurement team which in this case is CV. Langkisau Sarana Arta, a veterinarian, representative of the Dinas Peternakan dan Perikanan Sijunjung regency and representatives of the farmer group which in this case is the head of the farmer group will jointly elect pemacek in the Palangki cattle market.

Handover of assistance. Production facilities before being handed over to the group must have been received by the goods receiving team in accordance with the specifications as evidenced in the Handover Minutes (BAST). The delivery of goods is carried out by the Commitment Making Officer (PPK) on behalf of the government to the selected breeder's group as the executor of the activities as outlined in the form of a Cooperation Agreement (SPK). In the SPK it is

explained about: the parties who made the agreement, time and place, basic implementation, the scope of work, implementation of activities, number and type of goods, business development, sanctions, dispute, force major, and others.

Distribution of pemacek in farmer group. The results of research in the field obtained information, from five farmer groups. only one does do the rental, namely Batu Gadang Farmers Group. This group has doing rents to breeder non group of farming at a cost of Rp. 50,000.-. However, this has not yet been fully implemented because some breeders are heavy and are reluctant to spend the stipulated costs. Even though these costs will be used again for the purchase of concentrates and vaccination for the pemacek. pemacek is distributed to group members at night in rotation and during the day males are released to the grazing field with a group of female buffaloes to facilitate the occurrence of natural marriages on time. According to Hastono [7]. Timely breeding can shorten the calving interval from 20-24 months to 14-16 months so that it can increase breeders income is with increasead the number of ownership of buffalo livestock and by-products in the form of manure.

Replacement of pemacek in farmer groups. Based on the results of the research, replacement of the pemacek is carried out after the use of pemacek for more than 2 (two) years or the pemacek reproduction equipment is not normal (manjir / barren). Submission of a replacement must be submitted to the Sijunjung District Animal Husbandry Office for further action.

Accompaniment Program.Accompaniment of Program in the farmer group initially runs regularly every month. However, after this program runs for one year, field extension workers rarely come to groups to provide accompaniment. Field extension agents only come when taking monthly reports. while the districts technical team came to the location if there was a problem regarding the program, even that is not routine.

Reporting of the farmer group INKA program. The results of the study indicate that the reporting carried out by farmer groups is not in accordance with the implementation guidelines and technical instructions. Farmer group is assisted by field technical officers should provide monthly reports of natural breeding activities every month in the first week of the following month to the District / City Service with copies to the Provincial Office. But in reality. submission of reports is not carried out in a timely manner.

Implementation monitoring. Monitoring of the implementation of the INKA program in Sijunjung District was carried out by the district technical team and the provincial team. The activity is carried out every six months or every year gradually. However, in practice the provincial team just only do monitored when giving the initial assistance to the group and continued by the district technical team who came to the location two to three times to monitor the program. This condition is caused by the busyness of the provincial team, the long distanced from the province to the location and condition of the damaged road which is also a constraint.

Program evaluation. The results of the evaluation of based three indicators of the success of the implementation of the INKA program are shown in Table 4.

Table-4: Evaluation of INKA Program Implementation

Sl. no	Indicators of success	Implementation of the INKA program				
		Kubelu Saiyo	Lagundi Saiyo	Batu Gadang	Muaro Sumpur	Cahaya Gumelang
1.	Technical Aspects					
	a. livestock productivity in 2016					
	- Calving Rate (%)	31,82	0,00	29,41	21,74	17,24
	- Mortality Rate (%)	6,90	0,00	3,23	0,00	0,00
	- Natural Increase (%)	24,92	0,00	26,18	21,74	17,24
	b. livestock productivity in 2017					
	- Calving Rate (%)	40,91	0,00	44,44	28,13	24,24
	- Mortality Rate (%)	4,65	0,00	0,00	0,00	0,00
	- Natural Increase (%)	36,26	0,00	44,44	28,13	24,24
	c. Development of Buffalo Population					
	- The beginning of the program (Sept 2015)					
	- After research	22	72	26	32	36
	- (December 2017)	43	77	44	51	54
2.	a. Institutional aspects (person)					
	- The beginning of the program (Sept 2015)	24	24	12	25	18
	- After research					
	- (December 2017)	23	24	11	16	18

Table 4 shows that in 2016 and 2017 the Kubelu Saiyo farmer group was the group that experienced the highest calving rate of 31.82% and the mortality rate of 6.90% compared to other farmer groups while the largest NI growth was in the Batu Gadang farmer group is 26,18% in 2016 and 44,44% in 2017. The increase in birth rates has an impact on increasing the population of livestock in the group, this can be seen from the comparison of the initial population of buffalo livestock with the population at the time of the study. the highest population increase occurred in the Kubelu Saiyo farmer group, which was 48.84%. while the Lagundi Saiyo farmer group does not have an increase in population because the female buffaloes in the group have not been able to adapt with pemacek or it can be concluded that the program has not run in this group. The development of farmer group institutions after the program showed the decline of group members without accepting new group members, especially in the Muaro Sumpur farmer group which experienced a decrease in the number of members reaching 56.25% so that the farmer group was was deemed not developed like expected.

Problems in implementation the INKA program. The problems that occur in the implementation of the INKA program include: 1) pemacek given is wild so it takes time to tame it first; 2) during the election of pemacek, veterinarians and related parties were not careful in selecting livestock so that one pemacek proved to be infertile and needed time for the new pemacek replacement process; 3) assistance is only focused on the livestock, the introduction of feed processing technology and livestock waste processing is not socialized so that farmers are not independent in processing quality and cheap feeds so that cannot increase income through processing fertilizers from livestock manure and biogas from the buffalo urine; 4) the lack of motivation of farmers to develop their businesses and groups, which can be seen from not increasing the number of members of the group and even decreasing as in the Muaro Sumpur farmer group which 56.25% of its members resigned; 5) Monitoring conducted by the Sijunjung Regency technical team only runs at the beginning of the program, there is no sustainability; 6) Reporting by farmer groups is also only at the beginning of the program, then after the absence of monitoring by the technical team, reporting is not carried out in accordance with existing rules.

CONCLUSION

The implementation of the INKA program through farmer groups in Sijunjung District is seen from the implementation process in accordance with the implementation guidelines and technical instructions except for monitoring and reporting that is not in accordance with the existing rules. Evaluation of the implementation of the INKA program based on technical aspects has been able to increase the population and productivity of buffalo livestock to 81 or up 43.09%, where the average calving rate in 2016 was 20.04% and in 2017 was 27.54%. While the mortality rate is quite low at only 1.43% in 2016 and 0.74% in 2017 so that the average NI number in the population is in the medium category. Technological developments in the processing of feed and livestock waste have not yet been realized, as well as institutional aspects and product aspects have not shown significant development. whereas the problems that occur in the implementation of the INKA program are quite complex starting from the pemacek that are still wild and need time to be tamed, the quality of the breeders' human resources is still low so it is difficult to adopt technological innovations in animal husbandry development, the institutional groups of farmers are still weak and lack of assistance, monitoring, controlling and counseling in the implementation of the INKA program so as to make the farmer groups negligent with their obligations in accordance with the agreements agreed in advance.

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