

## Technical report of cow activities

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## 1 Characterization of the cattle production

In 2012, the identification report proposed a distribution of Brahman bulls to increase the productivity of the native cattle. The goal of this activity is to contribute to increase of the productivity, to reduce the consanguinity and to provide new technologies (stable, food). Three households received three Brahman bulls to realize these goals. Indeed, the native cattle has some problems: small size; low carcass percentage; low growth rate. However, the native cattle adapts itself to the Laotian environment and it has a good reproductive rate and calving. The cattle production is based on extensive grazing in the forest. Sometimes, during the dry season (November and December), the cattle is located in the stable and eats grass, rice bran and leaf stalk of rice.

The introduction of the Brahman bull has been realized to increase the productivity through a reduction of the time to achieve the mature weight and an improvement of the genetic characteristics. The literature and the local population estimate the mature weight of the local cattle at 4-6 years, while the mature weight of the F1 generation is achieved in two years. The visit of the beneficiary households has showed the physiological differences between the local calves and the F1 calves (Figure 1):

- Lower and bigger ears;
- Longer and larger size;
- Larger head;
- Less short on leg;
- More important bump;
- More important dewlap.



Figure 1: Difference between the local and crossed calves

## 2 Description of the beneficiary households and the evolution of the activities

The identification of beneficiary households is based on three factors : the participatory process (authority, village chief, cow breeders); the number of cattle; the agreement of the beneficiary household.

The participative process is directly realized with the staffs of Agriculture and Forestry Department of the District (DAFO) to get general information about the cattle production (constraints and opportunity). The village is chosen with a DAFO member and the village chief in function of the number of cattle (Figure 2). The improvement is introduced in a sufficiently large number of cattle to create favorable condition to reduce the consanguinity. A large number of cattle will allow to produce and diffuse F1 calves. The production of F1 calves will increase the genetic heritage of cattle and produce many indirect beneficiaries. This point is very difficult because the cattle per household have a small size. In 2011, the density rate in Attapeu province was estimated at 0.8 cow per household . Furthermore, the introduction of a new Brahman bull in a Laotian household is very complicated. Indeed, the breeder should understand that the local male should be replace with the Brahman bull. The change of the households thinking asks a lot of time and a good relationship between the household and the project team.

Three villages have been chosen in the Sanamxay district (Donesoue and The) and in the Phouvong district (Phouxay). The Donesoue cattle belongs to two households (Annexe 1).

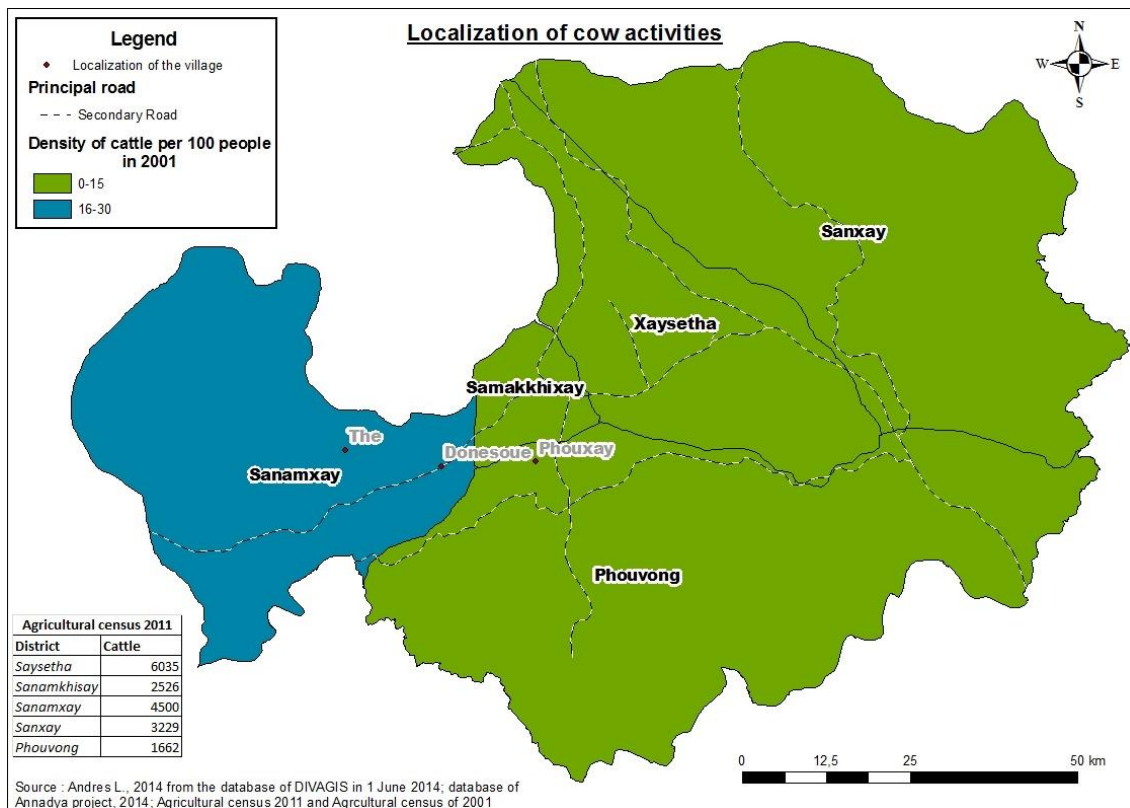


Figure 2: Localization of cow activities villages

In 2012, the ANNADYA project introduced three Brahman bulls. But, two out of three bulls of the beneficiary households died for two reasons. The first reason is the source of forages.

This source was reduced because a long flood that has created bad conditions to develop the forage in Donesoue village and there was a serious lack of grass and food for cows. The consequences on the Brahman bull was the consumption of non digestible materials such as plastic, ropes, clothes (Figure 3). The damage in Donesoue village is estimated at about 30,000,000 kip



Figure 3: Rumen contained plastic, clothes, rope

(3,000 euros). The second reason is linked to the extensive grazing in the forest. Indeed, the Brahman bull of the Phouxay village ate toxic plants in the forest just four months after its introduction.

In June 2014, the beneficiary households of Donesoue have 54 heads of cattle and two members of the household accompany the cattle in the forest and they return to the stable in the evening. This is a new strategy of the household because it protects the cattle against theft and loss. The second household of “The” village has 35 heads of cattle but the cattle is located in the forest and they don’t come back every day to the stable. The introduction of a Brahman bull in a large cattle is beneficial because the spreading of the genetic improvement increases and the cross-exchange with the other livestock herds during the grazing in the forest increases too. Furthermore, it is easier to maintain a Brahman bull in a household with some more resources. In 2012, the beneficiary of ‘The’ village also took advantage of a financial contribution to build a stable and cultivate elephant grass. Table 1 summarizes the expenses incurred for the three beneficiary households. The most important expenditure was the cost of the Brahman bulls (6,100 euros). The cost per household is high according to the number of beneficiary households (9 in June 2014) but this cost is explained by the death of two bulls. Furthermore, this activity is based on the research of a high number of indirect beneficiaries. Indeed, many people are interested by the introduction of improved-cow in local cattle. The first bull of Phouxay village died after 4 months and hadn't produced any crossed calf. The second bull died after one year (September and October 2013) but it had produced four calves. Two households have had an exchange with the bull of Donesoue. After two years, there is still one bull living in "The" village. The total of crossed calves is estimated at 10 calves (Table 2).Table 1: Expenditure of the cow activities.

no.	Activities	Units	Prices		Total (euros)	
			Kip	Euros		
1	Cross 3/4 Brahman	Bulls	3	20,740,000	2.033	6,100
2	Support Barn	Units (40m <sup>2</sup> )	1	2,618,000	257	257
3	Elephant grass (20 ares)	Kg	1	1,300,000	127	127
4	Vaccine FMD	dose	2	537,500	53	105
5	Vaccine Pasteurellosis	dose	2	40,000	4	8
6	Veterinary costs		2	60,000	6	12
7	Total					6,609

According to the households, the introduction of elephant grass is a good technology to increase and diversify the feed resources. But the problem is the monitoring and the cultivation of the elephant grass. Indeed, the area of the elephant grass doesn't develop through a lack of regular maintenance.

### 3 Principal results

The surveys realized in June 2014 about two beneficiary households and two other households that took advantage of the crossing with the Brahman bulls of the beneficiary households have allowed to produce some results presented in Table 1. The most important result is the number of beneficiaries and the number of calves improved. Indeed, nine direct beneficiaries are identified in The, Donesoue and Phouxay villages. The indirect beneficiaries are the households who buy the improved calves to profit advantage of the genetic improvement. The other indirect beneficiaries are the cattle present in the villages because the food system is based on an extensive land grazing and the exchanges after the project with other cattle are easier with this food system. Besides, the output of result 1 is reached because the survey of June has identified ten improved-breed cow heads (Table 2).

Table 2: Principal results in June 2014

Outputs of results	Indicators		Results
<b>10 improved-breed cow heads</b>	Number of households	Quantitative factors	4 households received Brahman Bulls 5 households realized a crossing with Brahman bulls and native cows
	Number of cow heads improved	Quantitative factors	10 crossed calves are identified in the district of Sanamxay (The and Donesoue villages) 3 Brahman bulls introduced in three villages
	Crossing interests	Qualitative factors	The F1 calf is more productive and it presents a good adaptation to the extensive grazing system and a resistance to local diseases To struggle against of the unfavorable effect of the consanguinity
	Physiological parameters to characterize the genetic improvement	Qualitative factors	The physiological improvement is described in the first point of this report but the introduction of Brahman bulls creates a genetic improvement checked by physiological parameters
	Price and income	Qualitative factors	The price is based on the size of the animal. If the size of the animal is bigger, the price is better and more interesting

The most important direct benefit is the reduction of consanguinity. The poor access of an other genetic inheritance decrease the productivity rate, the birthrate and the capacity to fight against the disease. Furthermore, the land grazing system encourage a indirect dissimination of the improved characteristics of Brahman or F1 calf.

The principal determinant of the cattle price is the size of the bull, calf and cow. The survey and the observations have determined that the crossed calf was bigger than the native calf (Figure 1). For example, the household of "The" village indicated that the price for a young animal of 1.5 years varied between 1,500,000 kip (little) and 2,500,000 kip (large) according to the size. Another household indicated that a cow of two years is sold at 2,500,000 kip. In 2009, a survey of the gender in agriculture showed that the average price for the cattle in the female headed household is 1,481,365 kip and for the cattle in the male headed household is 1,750,481 kip. The farmers sell the cow on his farm or at the local and district markets. But the price established depends on the size and the traders don't fix a fair price for the farmers. However, the survey of June 2014 shows that the estimated price of the crossed cattle is better than that of the native cattle.

**Table 3: Principal problems and solutions proposed**

<b>Problems</b>	<b>Solutions</b>
<b>The death of the bull</b>	Introduce a crossed cattle (F1) better adapted to the feeding, disease and environment Increase the control of feeding and contribution of elephant grass in the feed ration
<b>The elephant grass production</b>	To increase the training, the cross-exchange and the monitoring of this technology by the ANNADYA team More households should take advantage of this production because it's not expensive Interest of NGO and other project to spread this "new technology"
<b>Identification of the calves crosses because of the extensive grazing system that creates some difficulty to identify the crossed calves</b>	Sometimes, in November and December, the cattle is in the stable and it's easier to count the crossed calves in each beneficiary household

#### **4 Phasing out activities for the cow production**

The principal activities of the cow production will be the establishment of final listing of the calf and beneficiary households. Another activity will be the distribution of the calf of the beneficiary households to other household. To sum up, the future activities are:



- Establishment of a final list of the crossed calves produced;
- Identification of the households that took advantage of the crossing with the Brahman bulls of "The" and Donesoue village in November 2014 because the cattle is in the stable during the dry season;
- Distribution of calves has another HHs in the Phouxay village (identification, discussion, distribution);
- Cross-exchange in "The" village. The cross-exchanges with other households should be proved the interest to introduce improved-cow in their cattle (reduction of consanguinity, increase the productivity and the price) and disseminate the elephant grass technic.
- Training to show the interest to introduce improved-cow in the local cattle.

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