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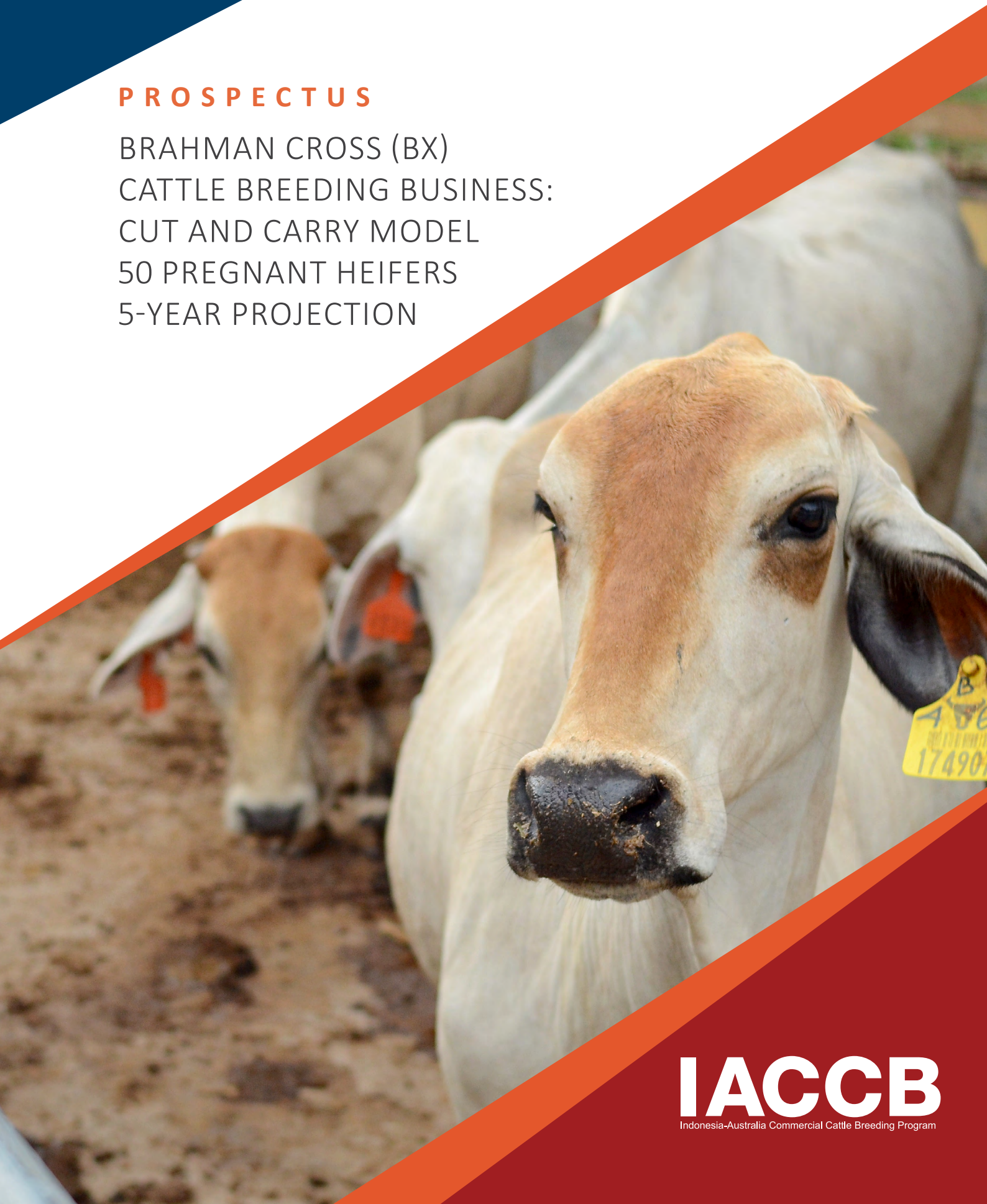
PROSPECTUS

BRAHMAN CROSS (BX) CATTLE BREEDING BUSINESS: CUT AND CARRY MODEL 50 PREGNANT HEIFERS 5-YEAR PROJECTION



IACCB
Indonesia-Australia Commercial Cattle Breeding Program

P R O S P E C T U S

BRAHMAN CROSS (BX) CATTLE BREEDING BUSINESS: CUT AND CARRY MODEL 50 PREGNANT HEIFERS 5-YEAR PROJECTION

This prospectus is prepared for the Indonesia-Australia Partnership on Food Security in the Red Meat and Cattle Sector (Partnership). We have made every effort to ensure the accuracy of information presented in this publication. However, the Partnership does not bear any responsibility for the accuracy or completeness of information or opinions contained in this publication. Readers must rely on their discretion in making decisions relevant to their interests.

BRAHMAN CROSS (BX) CATTLE BREEDING BUSINESS: CUT AND CARRY MODEL 50 PREGNANT HEIFERS 5-YEAR PROJECTION

To start a Brahman Cross (BX) cattle breeding business using the cut-and-carry model with a herd of 50 pregnant heifers and 3 bulls will require an initial investment of IDR 1,239,500,000. The business is projected to be cash flow positive in the third year. Calves are raised until two years old. During the first three years of operation, the business will have additional capital expenditure of IDR 211,000,000 and additional operational expenditure of IDR 1,166,926,500. Total capital needed before achieving cash-flow positive condition amounts to IDR 2,015,362,240. Considering the terminal value of herd closing stock, the Return on Investment is projected to be 25.23% in year 5 with a cumulative cash surplus of IDR 312,762,904 and additional infrastructure's residual value of IDR 61,000,000.

1. Summary of Investment

Business Development	Economic Calculation
Duration of operation 5 (five) years Herd size • 50 (fifty) cows • 3 (three) bulls Cut-and-carry breeding model with natural mating system Potentially selling 138 head of progeny age 2 (two) years old with approximate live weight 369 kg	Initial capital investment required IDR 1,239,500,000 Maximum investment before cash flow positive amounts to IDR 2,015,362,240 (includes investment and operational costs) Positive cash flow in year 3 Cumulative surplus cash flow in year 5 IDR 312,762,904 Including the terminal value of herd closing stock, ROI (Return on Investment) will reach 25.23%

This prospectus provides a financial summary for a smallholder breedlot using a cut-and carry cattle breeding production system. The prospectus uses the best-case scenario as experienced by an Indonesia-Australia Commercial Cattle Breeding Program (IACCBP) partner smallholder breedlot and the costings and assumptions are based on applied research conducted by IACCBP between 2016 and 2020. It assumes that cattle will be managed professionally and with a commercial approach to production. Although great results can be achieved many risks remain rearing Brahman Cross cattle at smallholder level. Additional information on commercial cattle breeding in Indonesia is available on www.iaccbp.org and https://redmeatcattlepartnership.org.

2. Initial Capital Investment Required

No	Category	Unit	No of Units	Price	Total
1	Cattle Purchase: Breeding female Breeding bull	 head head	 50 3	 IDR 21,000,000 IDR 22,500,000	 IDR 1,050,000,000 IDR 67,500,000
2	Breeding Centre: Cows and Calves Pens Forage and concentrate storage	 m^2 m^2	 375 25	 IDR 200,000 IDR 200,000	 IDR 75,000,000 IDR 5,000,000
3	Vehicle Three-wheeler	 unit	 1	 IDR 18,000,000	 IDR 18,000,000
4	Equipment Cattle crush, digital scale etc Pen utilities installation (water, electricity etc) Other equipment	 set set set	 1 1 1	 IDR 17,500,000 IDR 1,500,000 IDR 5,000,000	 IDR 17,500,000 IDR 1,500,000 IDR 5,000,000
	TOTAL				IDR 1,239,500,000

The initial capital investment[1] required is IDR 1.239 billion with the following details[2]:

- 50 (fifty) pregnant heifers in their 6 months gestation period and weight around 420 kg
- 3 (three) 450 kg bulls
- Cost for pens, 375 m^2 x IDR 200,000/m^2, including 6m^2 main pen/ head for cows, handling/calving pen, and loading/unloading ramp.
- Feed storage cost, 25m^2 x IDR 200,000/m^2
- Buying 1 (one) unit of local brand three-wheeler for transporting feed and manure and other purposes
- Buying 1 (one) set of equipment and supplies including locally made cattle crush, digital scale, buckets, shovels and other equipment as well as electricity/water or well installations.

1 The initial investment value may vary depending on cattle purchasing price, type of infrastructure materials or quality of equipment. It does not include land purchase/rental cost for pens

2 Infrastructure depreciation (breeding centre, vehicle and equipment) is 10 years, using the straight-line method

3. Annual Operational Costs

No	Category	Unit	No of Units	Unit Cost	Total
1	Direct Cost Animal Health package	month	12	IDR 500,000	IDR 6,000,000
2	Fixed Operational Costs				
	Labour	persons for 12 months	2	IDR 2,000,000	IDR 48,000,000
	Pens repair and maintenance	month	12	IDR 200,000	IDR 2,400,000
	Cattle yard/pen utilities (electricity, water)	month	12	IDR 50,000	IDR 600,000
	Office utilities (electricity, water)	month	12	IDR 50,000	IDR 600,000
	Administration, communication, marketing	month	12	IDR 50,000	IDR 600,000
	Vehicle operations	month	12	IDR 200,000	IDR 2,400,000
	Other/month	month	12	IDR 100,000	IDR 1,200,000

- Estimated operational costs[3] during the first year is IDR 61.8 million with an assumption of 3% yearly increase
- Annual operational costs comprised of:
  - Animal health cost: veterinary medicines and services
  - Labour cost of 2 stockmen
  - Overhead cost for pens repair/maintenance, pen utilities, administration, communication, vehicle operations and other costs

3 The estimated operational cost may vary depending on animal health costs, number of workers during the initial stage, workers' wages and overhead costs components.

4. Daily Operational Cost

No	Category	Unit	No of Units	Unit Cost	Total
	Feed and Supplement				
1	**Feed (intake) of Cows** Fresh forage Fresh concentrate Mineral supplement	 kg/head/day kg/head/day kg/head/day	 40.0 2.5 0.15	 IDR 150 IDR 1,900 IDR 4,000	 IDR 6,000 IDR 4,750 IDR 600
2	**Feed (intake) of calves** Fresh forage Fresh concentrate Mineral supplement	 kg/head/day kg/head/day kg/head/day	 22.4 1.4 0.10	 IDR 150 IDR 1,900 IDR 4,000	 IDR 3,400 IDR 2,700 IDR 400

Daily operational costs include feed cost[4] for cows and calves, which consists of forage, concentrate and mineral supplementation[5]. See the details below:

- Average feed cost of cows is IDR 11,350/head/day.[6]
- Average feed cost of calves after weaning is IDR 6,500/head/day.[7]
- Fresh forage cost IDR 150/kg (IDR 667/kg DM) is an estimation of average production cost.[8]
- It is assumed that feed cots will increase by 0.5% every year.
- Land: 10-14 ha of land will be required to meet forage production.[9]

4 Feed cost may vary depending on the feed composition, percentage of feed material required, percentage of dry matter in the commodities used, and feed materials price.
5 Mineral supplementation comprised of DCP (Dicalcium Phosphate or dicalcium phosphate), ZA (zwavelzure ammoniac or ammonium sulphur) and salt.
6 See more details in Annex 1. Feed Composition and Daily Need of cows. Feed commodities composition depends on the availability in each region. Changes in feed composition will affect cows body weight
7 See Annex 2. Feed Composition and Daily Need of Calves. Feed commodities' composition depends on the availability in each region. Variation in feed composition will affect calves body weight
8 See Annex 3. Estimated Forage Production
9 See Annex 4. Estimated Feed and Land Annual Requirement

5. Breeding Process Simulation

Period	Pre-business	Year 1	Year 2	Year 3	Year 4	Year 5
Month 1					Weaning III	
Month 2						
Month 3		Calving		Sale I	Gestation IV	
Month 4						Weaning IV
Month 5						
Month 6	Gestation I		Calving II		Sale II	Gestation V
Month 7		Weaning I				
Month 8						
Month 9		Gestation II		Calving III		Sale III
Month 10			Weaning II			
Month 11						
Month 12			Gestation III		Calving IV	

- Cows are purchased when they are 6 (six) months pregnant
- Calves are weaned at 4 (four) months old resulting in calves of 100 kg
- Calving interval between first and second calving is 15 (fifteen) months, hence no calving occurred in year 5
- Within 6 (six) months after the first calf and onwards, empty cows will be sold and immediately replaced with pregnant cows, to maintain 50 productive cows.
- All progeny will be sold at 24 (twenty-four) months old

6. Projected Stock

	Year 1	Year 2	Year 3	Year 4	Year 5
Opening Stock					
Cows	50 hd	50 hd	50 hd	50 hd	50 hd
Bulls	3 hd	3 hd	3 hd	3 hd	3 hd
Female progeny	0 hd	23 hd	46 hd	46 hd	46 hd
Male progeny	0 hd	23 hd	46 hd	46 hd	46 hd
Total Opening Stock	**53 hd**	**99 hd**	**145 hd**	**145 hd**	**145 hd**
Female and Male Calves born	**50 hd**	**50 hd**	**50 hd**	**50 hd**	**0 hd**
Female and Male Calves deaths	**4 hd**	**4 hd**	**4 hd**	**4 hd**	**0 hd**
Replacement					
Pregnant cow	5 hd	5 hd	0 hd	5 hd	5 hd
Bull	0 hd	0 hd	0 hd	0 hd	0 hd
Total replacement	**5 hd**	**5 hd**	**0 hd**	**5 hd**	**5 hd**
Cattle sold					
Female progeny	0 hd	0 hd	23 hd	23 hd	23 hd
Male progeny	0 hd	0 hd	23 hd	23 hd	23 hd
Culled cow	5 hd	5 hd	0 hd	5 hd	5 hd
Culled bull	0 hd	0 hd	0 hd	0 hd	0 hd
Total Cattle Sale	**5 hd**	**5 hd**	**46 hd**	**51 hd**	**51 hd**
Closing Stock					
Cows	50 hd	50 hd	50 hd	50 hd	50 hd
Bulls	3 hd	3 hd	3 hd	3 hd	3 hd
Female progeny	23 hd	46 hd	46 hd	46 hd	23 hd
Male progeny	23 hd	46 hd	46 hd	46 hd	23 hd
Total Closing Stock	**99 hd**	**145 hd**	**145 hd**	**145 hd**	**99 hd**

- All cows will produce total 50 (twenty) calves per year. The progeny is assumed to be 50% (fifty percent) male and 50% (fifty percent) female.
- Assumed mortality rate of all calves born per year is 4 (two) head, 2 male and 2 female calves.
- Progeny are sold at 24 (twenty-four) months old and sales begin in the 3rd year.
- Total cattle sales within five years will be 138 head (one hundred and thirty-eight) of progeny with an average weight of 369 kg[10] and 20 (twenty) culled cows with average weight of 450 kg
- Closing stock in year 5 will be 99 (ninety-nine) head.

10 Estimated ADG (Average Daily Gain) of cattle after weaning from 4-24 months old is 0.44 kg. The cattle are sold at 24 months old weight 369 kg. See more details in Annex 2.B. Estimation of Calf Weight and Forage and Concentrate Required by Calf in Each Growing Stage

7. Cash Flow Projection

	Initial Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Accumulated 5 years
Cattle Sales							
Female progeny				23 hd	23 hd	23 hd	69 hd
Male progeny				23 hd	23 hd	23 hd	69 hd
Culled cow and bull		5 hd	5 hd		5 hd	5 hd	20 hd
CASH IN							
Cattle sales		IDR 87,750,000	IDR 88,200,000	IDR 723,111,996	IDR 817,304,334	IDR 822,846,672	IDR 2,539,213,002
Cattle terminal value in year 5						IDR 1,508,617,872	IDR 1,508,617,872
Sub-total Cash In		IDR 87,750,000	IDR 88,200,000	IDR 723,111,996	IDR 817,304,334	IDR 2,331,464,544	IDR 4,047,830,874
Deducted by							
CAPITAL EXPENDITURE							
New cattle purchase	IDR 1,117,500,000	IDR 105,000,000	IDR 106,000,000		IDR 108,000,000	IDR 109,000,000	IDR 428,000,000
Infrastructure/Asset Recondition	IDR 122,000,000						
Sub-total Capital Expenditure	IDR 1,239,500,000	IDR 105,000,000	IDR 106,000,000		IDR 108,000,000	IDR 109,000,000	IDR 428,000,000
CASH OUT							
Direct Costs							
Feed and Supplement		IDR 265,764,800	IDR 349,593,440	IDR 360,550,260	IDR 380,837,030	IDR 382,716,440	IDR 1,739,461,970
Cattle health costs		IDR 6,000,000	IDR 6,180,000	IDR 6,365,000	IDR 6,556,000	IDR 6,753,000	IDR 31,854,000
Fixed Cost Operational Costs		IDR 55,800,000	IDR 57,474,000	IDR 59,199,000	IDR 60,974,000	IDR 62,805,000	IDR 296,252,000
Subtotal Cash Out		IDR 327,564,800	IDR 413,247,440	IDR 426,114,260	IDR 448,367,030	IDR 452,274,440	IDR 2,067,567,970
CASH SURPLUS (DEFICIT)	(IDR 1,239,500,000)	(IDR 344,814,800)	(IDR 431,047,440)	IDR 296,997,736	IDR 260,937,304	IDR 1,770,190,104	IDR 312,762,904
Cumulative Cash flow	(IDR 1,239,500,000)	(IDR 1,584,314,800)	(IDR 2,015,362,240)	(IDR 1,718,364,504)	(IDR 1,457,427,200)	IDR 312,762,904	

Cash flow Projection Analysis

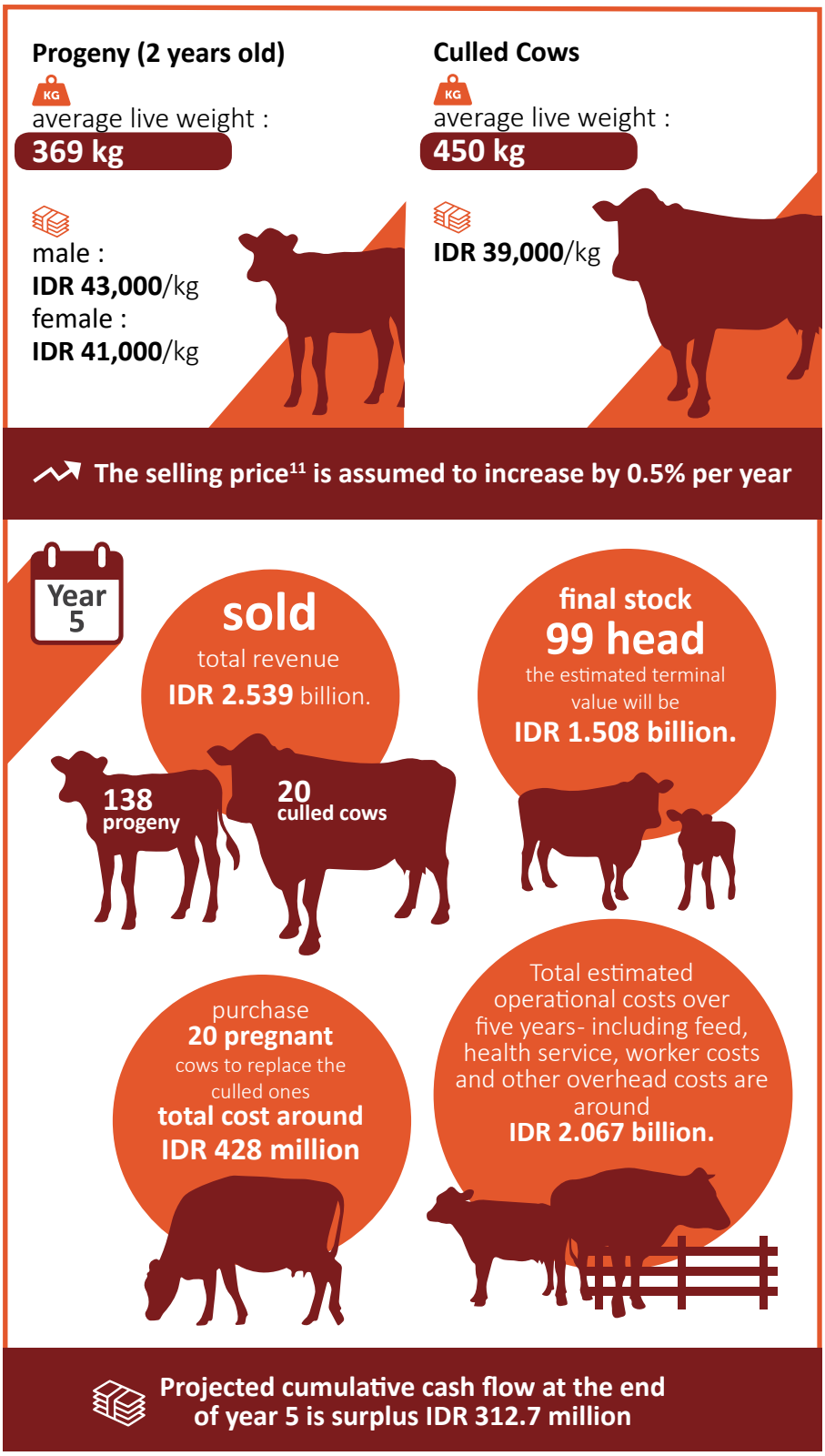
ROI (Return on Investment)	25.23%
IRR (Internal Rate of Return)	3.64%
Cumulative Cash flow	IDR 312,762,904
Positive Cash flow	Year 3
PBP (Pay Back Period)	Year 5

8. Cash flow Projection Analysis

Source of revenue:

(1) All female and male progeny sales at age 24 months old

(2) Culled cow sales



Based on the analysis, positive cash flow can be achieved in year 3. Return will be obtained in year 5. Purchasing pregnant cows will accelerate the positive cash flow. Taking into account the terminal value of herd closing stock, **IRR** (Internal Rate of Return) **in year 5 will reach 3.64%** and **ROI** (Return on Investment) **25.23%.**

11 Selling price/kg varies per region and is depending on sale time. Selling price has significant impact on the revenue

9. BX Cattle Breeding Business Risks

In order to run the business as planned, you should always pay attention to and maintain the cattle productivity performance parameters, including:

- **Body Condition Score:** Always maintain BCS (Body Condition Score) of Cows in ideal condition ≥ 3. Non-ideal BCS will reduce reproductive ability of the cows.
- **Average Daily Gain:** Maintain ADG (Average Daily Gain) of weaned calves to meet the targeted weight. Lower ADGs will impact final weight of sales cattle.
- **Cattle mortality rate including abortion and still birth**. Abortion and still births will affect the number of calves born. Calf death rate will affect the number of growers and finished cattle for sale. Meanwhile, cow and bull deaths will reduce the calving rate and increase the cost of purchasing new cattle for replacement,
- **Cull unproductive cows**. All cows that failed to conceive within the targeted period and not immediately culled (sold) can potentially increase feed cost. Delay in culling and replacing unproductive cows with new pregnant cows extend the calving interval and reduce the calving rate.

Annex 1. Feed Composition and Daily Need of Cows

A. Forage and Concentrate Required

	Cow
Average live weight	450 kg
% DM required in feed (of live weight)	2.5%
DM/hd/day required	11.3 kg
Forage	
% forage required	80%
DM required from forage/head/day	9 kg
% DM	22.5%
Forage required /head/day (rounded)	40 kg
Concentrate	20%
% concentrate required	
DM required from concentrate/head/day	2.3 kg
% DM of concentrate	90%
FM concentrate required /head/day (rounded)	2.5 kg

DM = Dry Matter
FM = Fresh Matter

B. Composition of Concentrate for Cows

No.	Feed Commodities	Proportion	IDR/kg	Ration Cost (IDR)
1	Dry *Onggok*	57%	2,000	1,140
2	Palm Kernel Cake	37%	1,800	666
3	Molasses	4.5%	1,800	81
4	Mineral mix	1.5%	2,500	38
	Total	**100%**		**1,925**
			Rounded	**1,900**

Annex 2. Feed Composition and Daily Needs of Calves

A. Concentrate Composition for Calves

No.	Feed Commodities	Proportion	IDR/kg	Ration Cost (IDR)
1	Dry *Onggok*	35%	2,000	700
2	Palm Kernel Cake	59%	1,800	1,062
3	Molasses	4.5%	1,800	81
4	Mineral mix	1.5%	2,500	38
	Total	**100%**		**1,881**
			Rounded	**1,900**

B. Estimation of Calf Weight and Forage and Concentrate Required by Calf in Each Growing Stage

Age	Initial Weight	Estimated ADG	Growing Period	Final Weight
4-6 months	100 kg	0.30 kg	61 days	118 kg
6-9 months	118 kg	0.40 kg	92 days	155 kg
9-12 months	155 kg	0.42 kg	92 days	193 kg
12-15 months	193 kg	0.45 kg	92 days	235 kg
15-18 months	235 kg	0.47 kg	92 days	278 kg
18-24 months	278 kg	0.50 kg	183 days	369 kg
Average		0.44 kg		

Age	Concentrate Required	Forage Required	DM Required (% of liveweight)	DM Required (kg)	FM Concentrate Required*	FM Forage Required**	Average Feed Cost / Growing Phase
4-6 months	20%	80%	2.5%	3.0 kg	0.7 kg	10.5 kg	IDR 3,300
6-9 months	20%	80%	2.5%	3.9 kg	0.9 kg	12.8 kg	IDR 4,200
9-12 months	20%	80%	2.5%	4.8 kg	1.1 kg	17.2 kg	IDR 5,100
12-15 months	20%	80%	2.5%	5.9 kg	1.3 kg	20.8 kg	IDR 6,100
15-18 months	20%	80%	2.5%	6.9 kg	1.5 kg	24.7 kg	IDR 7,100
18-24 months	20%	80%	2.5%	9.2 kg	2.1 kg	32.8 kg	IDR 9,300
Average					**1.4 kg**	**22.4 kg**	**IDR 6,500**

Note: DM= Dry Matter; FM = Fresh Matter
% DM Concentrate 90%
% DM Forage 22.5%

Annex 3. Estimation of Forage Production Cost

PREPARATION COST – ONLY ONCE AT THE BEGINNING	
Costs	
A. Initial Investment Cost	
Land leasing / ha / year	IDR 5,000,000
B. Preparation Package	
1. Land preparation and urea cost	IDR 1,150,000
2. Worker cost for planting	IDR 300,000
3. Forage seeds	IDR 400,000
Sub-total Cost (X)	**IDR 6,850,000**
ROUTINE ANNUAL COSTS	
Assumed harvest Cycle / year	6 times
Costs	
A. Leasing	
Land leasing (assuming no increase)	IDR 5,000,000
B. Annual Operational Costs	
1. Weed control, manure application and other maintenance, 6 cycles x IDR 300,000	IDR 1,800,000
2. Workers cost for 6 harvest cycles x IDR 300,000	IDR 1,800,000
Sub-total Cost (Y)	**IDR 8,600,000**
ANNUAL OUTPUT	**Fresh weight (kg/ha)**
Harvest 1	15,000 kg
Harvest 2	20,000 kg
Harvest 3	20,000 kg
Harvest 4	20,000 kg
Harvest 5	15,000 kg
Harvest 6	10,000 kg
Average of Total Harvest	**100,000 kg**
	Cost per kg fresh weight
Production Cost in Year 1 **(X+Y)/Z**	IDR 155
Production Cost year 2 onwards **(Y/Z)**	IDR 86

Annex 4. Estimated Annual Requirement of Feed and Land

	Year 1	Year 2	Year 3	Year 4	Year 5
Herd Size					
Cows and Bulls	53 hd	53 hd	53 hd	53 hd	53 hd
Calves	46 hd	92 hd	92 hd	92 hd	46 hd
DM Concentrate required for 12 months					
Cows and Bulls	43,646 kg	43,646 kg	43,646 kg	43,646 kg	43,646 kg
Calves	8,824 kg	24,707 kg	26,471 kg	30,001 kg	30,001 kg
Total	**52,469 kg**	**68,352 kg**	**70,117 kg**	**73,646 kg**	**73,646 kg**
DM Forage required for 12 months					
Cows and Bulls	174,582 kg	174,582 kg	174,582 kg	174,582 kg	174,582 kg
Calves	35,295 kg	98,827 kg	105,886 kg	120,004 kg	120,004 kg
Total	**209,877 kg**	**273,409 kg**	**280,468 kg**	**294,586 kg**	**294,586 kg**
Land required	9.9 ha	12.9 ha	13.2 ha	13.9 ha	13.9 ha
Land size (rounded)	**10 ha**	**13 ha**	**14 ha**	**14 ha**	**14 ha**

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