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Commercial Smallholder Cooperative Breedlots

IACCB
Indonesia-Australia Commercial Cattle Breeding Program



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Commercial Smallholder Cooperative Breedlots

01 Introduction

Breedlots are intensive cattle breeding systems in which forages, agricultural by-products and mineral supplements are provided for cattle that are kept permanently in yards or pens (*kandang*s). The breedlot system is practiced by the majority of traditional cattle breeders in Indonesia¹, which predominantly includes smallholder farmers implementing low-input, low-output operations. Some progressive farmers have adopted a more commercial approach to cattle breeding, increasing the quality and quantity of feeds and other inputs and paying more attention to management and marketing. This paper examines the potential of smallholder cooperative² Breedlot systems to become commercially viable businesses, as distinct from traditional subsistence breedlot systems which aim to contribute to a diversified livelihoods strategy that minimizes risk but has little or no focus on profitability.

The information presented is based on data generated by two pilot projects implemented by the Indonesia-Australia Commercial Cattle Breeding Program (IACCB) in partnership with two farmer groups - Koperasi Produksi Ternak Maju Sejahtera (KPT) in Lampung and Kelompok SPR Mega Jaya (SPR) in East Java. KPT is a well-managed livestock cooperative groups that has transparent systems and leadership, and consist of members with a good understanding of cattle breeding and possessing some financial flexibility and/or access to finances. These are all key-ingredients for small-holders to be successful in more commercially oriented cattle breeding. SPR has had struggles with management and implementation of its operations but is similarly committed to success. Annex 1 provides detailed information on the two cooperatives.

The analyses and projections used in the paper³ have been generated by a spreadsheet-based cattle enterprise model developed by IACCB called CALFIN (Cow-calf Operations Financial Modelling)⁴.

- 1 Breedlots are common throughout central, northern and western Indonesia. Open-grazing of rangelands is more common throughout NTT.
- 2 Also includes farmer groups that have appropriate cohesion and commitment.
- 3 These calculations and projections are based on earnings before interest, tax, depreciation and amortisation.
- 4 CALFIN can be downloaded from www.iaccbp.org or <https://www.redmeatcattlepartnership.org/>



02 The Breedlot system

Breedlots are intensive cattle breeding systems in which forages, agricultural by-products and mineral supplements are provided for cattle that are kept permanently in yards or pens (*kandang*s). Cows are normally tethered within the stalls but with appropriate pen design this is unnecessary. Tethered cows are more likely to experience soundness issues and will be less likely to conceive if natural mating is used.

Both natural mating (using bulls) and artificial insemination (AI) can be used in breedlot systems. Where AI support services are timely and effective, this can be a low-cost option for breeding. However, in many locations bulls remain the most reliance option for mating.

The breedlot system is practiced by the majority of traditional cattle breeders in Indonesia⁵, which predominantly includes smallholder farmers implementing low-input, low-output operations. Feeds generally include crop wastes such rice straw and corn stover, roadside forages collected and fed daily and small amounts of concentrate feeds such as rice bran. The aim of these low-input systems is to generate a calf by spending as little as possible.

Commercial breedlots are often established in association with feedlots, generally originating as a method to care for imported feeder heifers that have arrived pregnant. In some feedlots, the number of breeders has grown over time to become significant herds of several hundred breeders.

Breedlots have also been incorporated into some large-scale commercial cattle operations. This can include SISKAs or open-grazing systems where breeders are removed from the mob one month prior to calving and placed in pens so that the calving process can be better supervised. Cows and calves then remain in the breedlot for approximately 2 months until the cow has recovered and the calf is robust enough to join the grazing herd.

Commercial breedlot feeds generally comprise low-cost agro-industrial by-products such as palm kernel cake, mill sludge (solids) and cassava by-products as onggok⁶, and chopped forages such as king grass. If located close to a feedlot reject feedlot rations can be used. Reasonable rates of productivity can be achieved

5 Breedlots are common throughout central, northern and western Indonesia. Open-grazing of rangelands is more common throughout NTT.

6 Waste product after expulsion of starch, generally used in dried form but can be fed wet

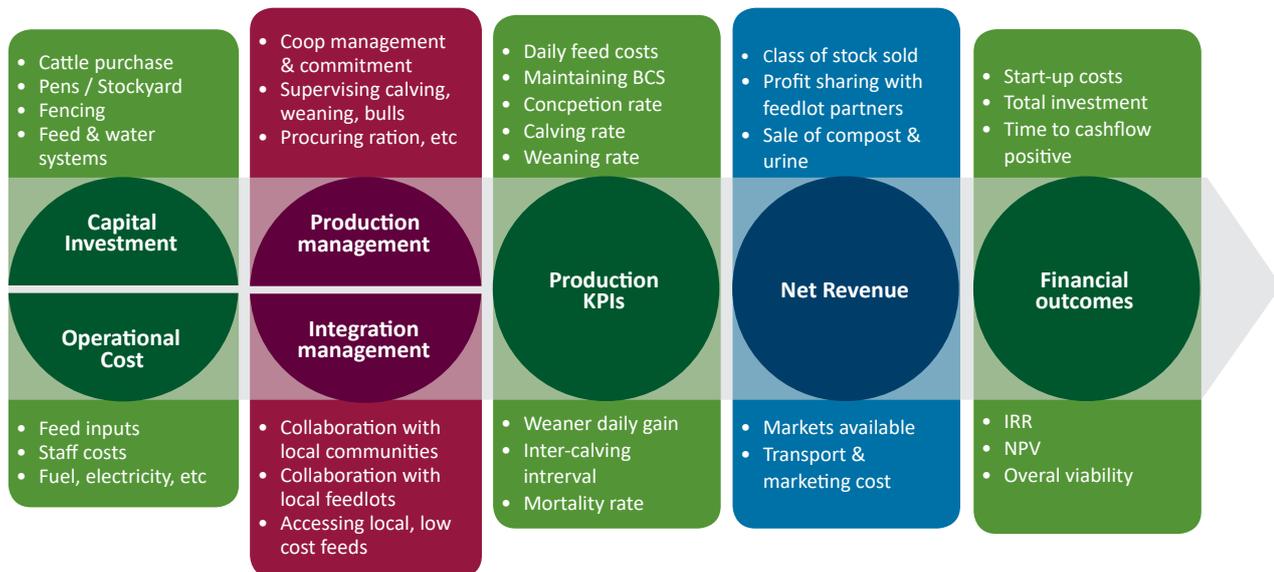
from these inputs at moderate cost. Because all feeds must be purchased and then prepared and fed out using labour resources breedlots can be marginal businesses. In contrast, free-grazing systems such as SSKA and open-grazing use grasslands and under-story forages that are directly grazed and require relatively limited labour inputs.

Commercial smallholder cooperative breedlots retain components of the low-input breedlot system, but add better quality feeds and management and the ability to purchase inputs and market cattle collectively. Most smallholder cattle breeding operations across Indonesia lack financial capacity, have limited access to quality production inputs, and have a weak bargaining position in marketing their product. Collaborating through group or cooperative structures can address these issues, but groups and cooperatives are also commonly constrained by weak institutional arrangements that impact their effectiveness and sustainability.

03 Factors Influencing Commercial Viability

In simple terms, commercial viability is the outcome of production and sales achievements less investment and operational costs. These outcomes are summarised using metrics such as the internal rate of return (IRR) and the net present value of the investment (NPV). Figure 1 provides a schematic overview of the factors that impact viability, all of which are interrelated. Production KPIs and sales revenue drives the revenue base. Quality and integration factors directly impact production outcomes but are difficult to quantify and therefore not directly included in CALFIN.

Figure 1. Factors impacting the commercial viability of a smallholder cut-and-carry enterprise. CALFIN is driven by data for green boxes and assumptions for revenue (blue box). Quality and integration factors are not directly considered but strongly impact KPIs and financial outcomes achieved



Achieving acceptable outcomes for each of the viability factors is predicated on thorough planning and research. Most successful breedlots carefully consider their location. They are either close to the source of production inputs, close to markets for feeder or finished cattle or both. The main inputs for cattle breeding industry are feed and breeding stock. A location close to sources of agricultural by-products will generally reduce production costs. The cattle breeding industry produces feeder cattle or finished cattle. A location close to feedlot industries or beef consumers will generally result in a strong market and low transportation costs. A breedlot location that is close to sources of low-cost inputs and a strong market is ideal.

Capital investment

Cattle are the largest investment and have a major impact on production outcomes. Bali cattle are not appropriate for commercial supply chains and *Bos taurus* breeds are poorly adapted to the hot, humid environments of Indonesia. Traditional smallholder farmers, as in the case of the IACCB's partner in Lampung, already managed a number of locally purchased Ongole cattle. To grow their cattle breeding business in collaboration with IACCB, a Brahman-cross (BX) start-up herd was purchased from Australia which is often preferred for commercial cattle breeding enterprises. Timing purchases to coincide with periods of low cattle prices in Australia should be considered as prices tend to fluctuate dramatically with seasonal conditions. BX breeders can sometimes be purchased from Indonesian feedlot companies.

IACCB's partner cooperative started its breeding business in April 2017 by purchasing 100 pregnant Brahman-cross (BX) heifers and 6 bulls. The initial capital investment was IDR 2.7 billion⁷ of which IDR 2.3 billion was allocated for the cattle purchase and the balance for the establishment of pens, purchase of three-wheeler motor cycles and other farm equipment and tools. Purchasing pregnant heifers certainly accelerated the generation of positive cashflow. Calves born in year 1 can be sold in year 2 at approximately 18 months of age. However, pregnant heifers are more expensive than dry heifers and are not easy to obtain in large quantities. Further, the level of management required is also considerably greater for pregnant heifers as they are more susceptible to stress during transportation. Companies and cooperatives should carefully assess the costs, benefits and logistical challenges before committing to the purchase of pregnant heifers.

Operational costs

Cattle production in smallholder breedlots is largely based on forages such as elephant grass, provided in combination with concentrate supplements such as palm kernel cake, wet *onggok* (tapioca by-product), rice bran, maize stover or other available agri-byproducts and additional minerals. These should be fed at rates that maintain the desired body condition⁸ of cows at the lowest possible cost.

⁷ 1 AUD = approx. IDR 10,000

⁸ Brahman-cross cattle should be maintained at a body condition score of 3 or more to ensure reproductive efficiency. This equates with a moderate level of fat cover across the hind quarters.



IACCB's partner cooperative started with a centralized cattle breeding system housing the 100-cow herd in one location which provides for homogenous management and similar cattle treatment for the whole herd. The partner decided to decentralize at the end of the third year to provide the opportunity for other farmers in other locations to gain experience with BX-cattle breeding. The decentralized system of cattle breeding resulted in the herd being divided into 6 satellite breedlots, each handling 10-20 breeders and managed by different breeder groups. Decentralized systems impact on feed and overall operational costs. For IACCB's partner cooperative, the average feed cost for cows for the last 2 years (2018-2019) was IDR 11,000 per head per day and for calves was IDR 8,250 per head per day. The average operational cost was IDR 2,250 per head per day. Weaned calves achieved an average daily gain (ADG) of 0.38 kg liveweight.

Feed is the most significant cost of a breeding business. Feed costs need to be kept to a minimum without impacting breeder condition. The cheapest feeds on a weight basis may not provide the lowest cost feed solutions, so it is essential to obtain expert assistance when developing rations. At one extreme, rice straw is very cheap but is of very low quality. At the other extreme, soybean meal is very expensive but has an exceptionally high protein content providing high growth. Getting the balance right will save money on feed without compromising productivity.

Where land is available it will be possible to produce forages to reduce the feed costs. If land is not owned there may be options to rent land for forage production. IACCB's experience is that it is more cost-effective to produce forages on owned or rented land than buying feed directly from feed suppliers. Producers should also take advantage of crop wastes from neighbouring farms that can be used as cattle feed. An IACCB partner in Central Kalimantan collected the sweet corn stover free of charge and all year round from local farmers who benefited from having the waste removed.

Where cooperative cattle breeding operations hire labour this will represent a significant expense. An experienced caretaker can manage 50-60 breeders. Professional pen caretakers may also require assistance from unskilled laborers. In some locations Vocational High School students undertake internships on cattle farms so they can learn skills and ease the workload on the farm.



04 Production and management

Profitability outcomes are largely driven by production and management factors. Significant differences occur between traditional and commercial smallholder cattle breeders. Traditional farmers focus on maintaining a couple of cattle, particularly as savings and prioritizing low expenditure and optimal use of their subsistence farm by-products. Commercial breeders, on the other hand managing bigger numbers of cattle and progeny, need to provide a more sophisticated proactive management to maintain the herd in optimal reproductive condition.

Management: Commercial cattle breeding requires capable management and full-time attention – 24 hours a day 7 days a week. Managers need to establish a schedule of operating procedures for pen caretakers to ensure that feed is always available in the required quantity and quality and animal health and welfare are maintained. Inadequate management will result in decreased cattle performance - low BCS of breeders, long calving intervals, low productivity of bulls and low ADGs of growers. The profitability of the business will decline dramatically with inadequate management.

Community integration: Because the cut-and-carry cattle breeding is generally conducted in rural areas there is a need to integrate with the local community. Cattle breeding businesses can create jobs for local communities, ranging from labouring, to forage production and value-adding through to developing small beef-based home industries such as producing ‘beef floss’ or meatballs for the local market. Poorly integrated cattle businesses can be impacted by theft and obstruction from local communities.

05 Production KPIs

Cattle production KPIs: Production KPIs and quality factors are inherently linked. Breeders require appropriate forages and supplementary rations to maintain a BCS of 3 or greater. Correct BCS supports high conception and calving rates. Effective weaning leads to high weaner average daily gains (ADGs) and so on.

Table 1 provides indicative production costs based on experiences from IACCB's partner cooperative. A weaner can be produced for approximately IDR 6.7 million. A feeder animal, with a liveweight of 320 kg can be produced in 19 months after weaning (assuming the weaning is at 4 months old and the weight is 100 kg) at a total production cost of IDR 12.8 million or a liveweight cost of IDR 40,000 / kg. The production cost for feeder cattle is competitive with the price of cattle in local markets as well as with the cost of imported Australian feeders. The average price of imported feeders ranged from IDR 40,000 to IDR 45,000 in 2019 and up to IDR 50,000/kgv in 2020.

Table 1 : Production costs from IACCB partners average over a 3-year periode

Cows' Costs		
Feed costs (hd/day) - Cows	IDR	11,000
Operational costs (hd/day)	IDR	2,250
Sub-total Daily Costs /hd	IDR	13,250
Calving Rate		79.1%
Calves Mortality		9.0%
Total Daily Costs /hd - Cows*	IDR	18,410
Weaner Cost (100 kg)	IDR	6,719,650
*incl. the costs' calculation of non-productive cows and calves mortality		
Calf weight at weaning (kgs/hd)		100 kg
Grower weight gain (kgs/hd/day)		0.38 kg
Target weight at sale		320 kg
Months required (Weaning to sale)		19 mths
Growers' Costs		
Feed costs (/hd/day) - Growers	IDR	8,250
Operational (/hd/day) - Cows + Growers	IDR	2,250
Sub-total costs to weaning (/hd/day)	IDR	10,500
Grower mortalities		0.0%
Total Daily Costs (/hd/day) - Growers	IDR	10,500
Rearing Costs from Grower to Feeder /hd (320 kg)	IDR	6,078,900
**incl. the costs' calculation of grower mortality		
Total Feeder Costs /hd (320 kg)	IDR	12,798,550

06 Net revenue

Not surprisingly, sale price will have a large impact on financial outcomes. Sale price is impacted by market factors, such as location, sales methods and buyer preferences, as well as the quality of the cattle being sold. In remote locations cattle are generally sold by appearance on a per head basis (*jogrogan*), rather than on a weight basis. There is generally a preference for small-framed cattle of around 350 kg mature weight, rather than large-framed cattle of 500 kg liveweight. Not all locations have a high demand for beef.

Breeding businesses require continuous capital inputs, starting with the initial investment for cattle purchase, establishment of pens and other supporting infrastructure, and leasing of land for forage production and funds also need to be allocated for feed, labor and overheads. Many cooperatives and small breeding businesses commence operations using only their existing resources and personal savings. These resources may not be sufficient to fund the operation through to achievement of positive cashflow. One of IACCB's partner cooperatives anticipated the need for additional operational funds and used a crowdfunding investment system obtained from members to meet the shortfall. This enabled cattle to be properly fed after personal financial resources had been expended. Profits were then shared among the members once cashflow turned positive.

Small amounts of cashflow can be generated through the sale of by-products from the breeding business, such as the sale of compost or cattle urine. This is being done by one of IACCB's partner in Central Kalimantan. Regular and scheduled sales of compost can become an important component of revenue. Managers must first examine the market for compost demand in their area. Pens should be designed to facilitate ease of collecting dung and the processing into compost.

07 Financial outcomes

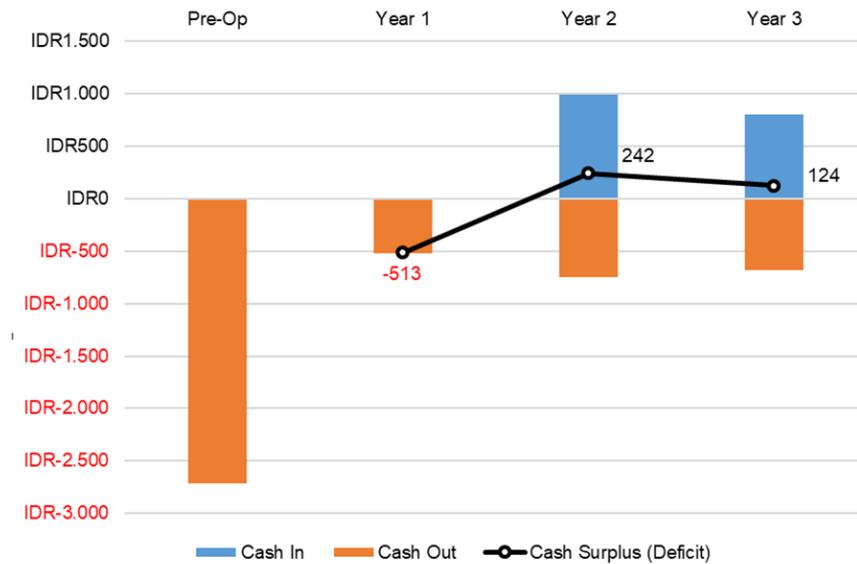
Cashflow: Smallholder farmers often need to prioritize quick cashflow to maintain productive herd size given financial resources are limited. Acquiring pregnant heifers ensures that a positive cashflow can be obtained already in the second year.

IACCB's partner cooperative had 99 out of 100 heifers producing a calf in the first year, contributing to the rapid generation of cashflow. One-and-half year after commencing their BX breeding business, they successfully sold 87 yearlings through an open auction system⁹. With an auction sale value of IDR 993 million in year 2, the sales revenue exceeded the total expenditure of IDR 681 million. In September 2019, they again successfully sold 82 yearlings¹⁰, achieving surplus cashflow of IDR 242 million and IDR 124 million in year 2 and year 3, respectively (Figure 2).

⁹ KPT MS Lelang 87 Ekor Pedet Brahman Cross Australia, 15 November 2018, available at <https://www.lampost.co/berita-kpt-ms-lelang-87-ekor-pedet-brahman-cross-australia.html>

¹⁰ LPDB Blusukan ke Sentra Peternakan Sapi Lampung, 6 February 2020, available at <https://rri.co.id/ekonomi/782614/lpdb-blusukan-ke-sentra-peternakan-sapi-lampung>

Figure 2. Cashflow (in million IDR)



Few breeding enterprises will be able to generate a profit from the sale of weaners (generally 6 to 12 months old). Optimally progeny will normally be 18 to 24 months old before they are sold – nominally at a weight of 275 to 375 kg liveweight. The financial needs at smallholder level often results in the sale of young progeny which provides for quick cashflow but not necessarily the biggest profit.

Innovative sales methods

One of IACCB’s partners in Lampung sold its cattle through an innovative, open auction system. Because the open auction system was new to Lampung it attracted the attention of the local community. The average sale price achieved via auction was IDR 55,000 / kg, whereas young cattle normally sell for below IDR 50,000 / kg using conventional sales methods.

Starting a cattle breeding business using dry heifers delays cashflow positive status. The acquired dry heifers require a minimum of 1 year to become pregnant and calve. Targeting this results in the earliest income generation from normal sales (after 18-24 months) only occurring 2.5 to 3 years after start-up. Minor sales of cull cattle may occur before this.

It is also important to calculate the impact on cashflow of withholding cattle to target a particular market, for example Qurban, compared to selling the cattle during normal times.

Sale price has a major impact on revenue earned and profitability. Highest prices for cattle will always be achieved during Qurban, however there will be a limit for the size of this market in each location.

Internal rate of return: The IRR for an investment is the percentage rate earned on each dollar invested for each period it is invested¹¹. Investors will naturally expect to achieve an IRR that is greater than the interest rate cost of capital investment. Indonesian business investors generally expect that the IRR for

¹¹ Taking into account the relatively long cycle of a cattle breeding business, IACCB has used 10 years from start-up as the investment period. IRR also includes a terminal value calculation at the end of year 10.

a cattle breeding business should exceed 10%¹².

The projections for cashflow and IRR take into account livestock productivity data such as calving rate, calf and weaner/grower mortality rate, average daily gain (ADG), percentage / number of culled cows, percentage / number of retained female calves (heifers), and livestock sale strategies (including cattle category and selling age). The projections also consider income and expenditure factors, including feed costs and estimated selling price per livestock category. Other calculations include additional investment in supporting infrastructure and additional livestock purchases to grow the herd or replace culled and unproductive cows. CALFIN supports examination of price and other assumptions using a sensitivity analysis function.

IACCB's financial projections are based on actual data from almost 3 years of operations through to end 2019¹³ and projections for the next 7 years through to 2026. The projection includes following assumptions:

- Calving rate 80%,
- Calf mortality rate 7%,
- 5% of cows culled annually,
- All progeny is sold at 15 months old,
- The herd will be expanded to an additional 240 head over a 6-year period to be kept in its satellite breedlots, and
- A partnership with a local commercial feedlot will be developed to breed 20 cows each year.

With the addition of these new breeders, it is projected that the total number of cattle managed will increase from 147 head at the end of 2019 to 494 head in 2026, generating an IRR of 13.73%.

Commercial feedlots that are now required to produce breeder cattle are commonly interested in partnering with commercially-orientated small-scale cattle producers to assist with some component of the rearing operation – generally growing out weaners. If executed effectively, these partnerships can be mutually beneficial to both parties¹⁴.

12 Discussion with owners/managers of IACCB Partners

13 Period from April 2017 to December 2019

14 The IACCB Paper 'Mencari Model Kemitraan Pembiakan Sapi BX yang saling Menguntungkan' (Searching for a mutually beneficial partnership in BX cattle breeding) is based on a workshop with breedlots, smallholders and government in 2019 in Lampung and can be found on www.iaccbp.org

08

Effective management of farmer groups and cooperatives

To deliver worthwhile benefits to its members, smallholder farming cooperatives need:

- Strong, innovative and visionary leadership,
- Reliable access to finance, feed ingredients, veterinary medicines and technical expertise, and
- Transparency in financial management.

In general, smallholder farmers have not been able to manage their business according to the “Good Livestock Practices” due to limited education, lack of knowledge and skills, and lack of facilities and infrastructure. Strong institutional management is essential to a successful cattle breeding business operated by farmer groups or cooperatives. This includes transparency in organizational financial management to avoid conflict within the group. A visionary and democratic leader of the group, who is able to bring together all its members, is also required for a sustainable organization.

An effective cattle business needs to take care of its environmental impacts. Waste and air pollution generated from the business operation must be managed properly to protect the local environment. The welfare of cattle in the system also needs to be considered so that animals are treated humanely throughout their lives in the production chain.

It is important to foster good relations with the local communities to ensure benefits for other community members. Disruptive parts of the local community threaten the security of the production unit.

Business sustainability is often dependent on achieving efficiencies of scale. Business scale-up must consider the risk factors in growing the business. Businesses that experience rapid scale-up often struggle to maintain good management practices. As capacity increases it is essential to ensure that feed can be supplied in sufficient quantity and quality throughout the year, and that markets are able to readily absorb the additional supply of feeder and finished cattle. Careful planning should consider the additional cashflow required during the scaling-up period.



09 Conclusions

Smallholder cooperative breedlot system has the potential to be financially viable if they adopt a commercial approach to production. Early cashflow can be generated by purchasing pregnant heifers, adopting innovative sales methods, and the sale of cattle by-products (such as compost or urine). In addition, attention to feed production and procurement and optimal use of labor can reduce expenditure and increase profit.

The majority of small-scale cattle breeders in Indonesia do not adopt a commercial approach, opting instead for low-input, low-risk subsistence systems. Commercially oriented cooperatives breeding cattle need to plan all aspects of their operations as this will have an impact on business cashflow and profitability.

Commercially oriented producers must maintain financial and productivity records as part of their routine activities. These records enable a business to examine what is working and what requires improvement as part of their decision making.¹⁵

To know more about the smallholder breedlot systems click the following link <http://bit.ly/Cut-and-Carry>

Case Studies of smallholder cattle breeding farmer groups

1: Koperasi Produksi Ternak – Maju Sejahtera

Koperasi Produksi Ternak – Maju Sejahtera (KPT) is a cooperative located in South Lampung. It's members are experienced in managing small scale PO cattle breeding and maintain around 10 breeders. KPT commenced a partnership with IACCB in 2017 to examine the capacity of smallholder farmers to establish a commercially viable cooperative based on Australian Brahman-cross cattle. IACCB supplied 100 pregnant cows and 5 bulls, while KPT provided pens, equipment, workers and feed. Initially, all cattle were placed in one of the members' cattle yards. Group members contributed funds for maintenance of the operation on a monthly basis. Three stockmen were hired for daily management of cattle. Forages were provided through 2 systems – leased land and planting king grass on member's land, which price decided based on the production cost plus a profit fee.

KPT is located Lampung, a province that produces agricultural and plantations crops. Feed by-products such as cassava waste, corn waste and palm kernel cake are readily available in Lampung. Together with king grass, produced by members on leased or owned land, these formed the basis of feed provided. Following some initial assistance from IACCB, KPT has been able to maintain a stable BCS of cattle herd, with BCS > 3. Along with good bull management this has enabled KPT to achieve an average calving rate of 80%, calf mortality of 8%, ADG of 0.4 kg and calving interval between 13-14 months. Given a strong local market for cattle, these outcomes have enabled KPT to become commercially viable.

¹⁵ IACCB has developed CALPROS (*Cow-calf Operations Recording Spreadsheet*) a supporting tool to record cattle productivity, enriched with interactive dashboard to ease the productivity result's analysis. CALPROS can be downloaded at www.iaccbp.org

KPT is now partnering with a local feedlot company to further grow the business. Initial arrangements involve 30 pregnant cows owned by the feedlot that will be managed by KPT. A profit-share arrangement has been negotiated based on KPT's strong performance in managing BX cattle.

2: SPR-Mega Jaya Group

SPR-Mega Jaya Group (SPR) is a farmer group located in Bojonegoro district. Its members raise 1-3 head of PO cattle reared in traditional low-input, low-output backyard production systems. Farmers prioritise food crops such as rice, corn and beans, with cattle being a secondary commodity. Cattle-rearing has been supported by the regional government to promote relatively isolated villages in the *Perhutani* area. The area is accessed via narrow, rocky dirt roads, making logistics costs relatively high.

SPR commenced a partnership with IACCB in 2017 to examine the capacity of smallholder farmers to establish a commercially viable cooperative based on Australian Brahman-cross cattle. IACCB supplied 100 heifers and 5 bulls. The group members raised BX cattle in a communal pen large enough for cattle to be kept without being tethered. Funding support for the pen was provided by the East Java Provincial Government.

Members of the group were hired as stockmen/stockwomen under a profit-sharing system. Forages were provided by members from their own lands. Dry seasons proved to be challenging for the group as forages were in very short supply. Rice straws treated with urea and corn straws were provided as an alternative ration. Only small amounts of concentrate rations were provided due to the limited financial capacity of members. In addition, group members prioritised production of food crops over cattle. This was a particular issue during crop planting and harvesting periods. As a result, the BCS of the herd declined and continued to fluctuate at below optimum scores.

With these challenges, IACCB made the decision to reduce the herd size from 100 to 75 breeders, and finally to 50 breeders. It was found that 50 head was a better match for the financial capacity, feed and labour availability of the group. This change resulted in SPR becoming a commercially viable business.

Summary of achievements of the two projects is provided in the following table:

KPT-MS	Parameter	SPR-MJ
<ul style="list-style-type: none"> Stable BCS, average > 3 	 BCS	<ul style="list-style-type: none"> Volatile due to inconsistent feeding management
<ul style="list-style-type: none"> Calving rate 84% 	 Calving	<ul style="list-style-type: none"> Calving rate 50%
<ul style="list-style-type: none"> Calf mortalities 8% Grower mortalities 0% 	 	<ul style="list-style-type: none"> Calf mortality 6% Grower mortality 1%
<ul style="list-style-type: none"> ADG: 0.38 kg 	 Calf Growth	<ul style="list-style-type: none"> ADG: 0.28 kg
<ul style="list-style-type: none"> 13-14 months 	 Calving Interval	<ul style="list-style-type: none"> 20-24 months
<ul style="list-style-type: none"> Crowd funding from cooperative members Partnership with feedlotter 	 Financial Capacity and Access	<ul style="list-style-type: none"> Limited from farmers East Java government support for infrastructure
<ul style="list-style-type: none"> Marketing under auction system Qurban market provides opportunity for a premium price for adult bulls. Bull price reaches IDR 50,000 - 55,000 / kg live weight at farm gate. 	 Marketing	<ul style="list-style-type: none"> Local market not familiar to BX cattle that affects price Regional markets are limited due to isolated business location resulting in higher logistics costs Qurban Market. Financial constraint has forced them to sell young cattle, thus missing out the opportunity to sell adult bulls at a premium price in Qurban markets.
<ul style="list-style-type: none"> Feed cost IDR 8,250 Operational cost IDR 2,235 Feeder production cost IDR 12,802,000 (IDR 40,000/kg of 320 kg live weight) 	 Production Cost	<ul style="list-style-type: none"> Feed cost IDR 11,350 Operational cost IDR 1,120 Feeder production cost IDR 14,250,000 (IDR 44,530/kg live weight, 320 kg)
<ul style="list-style-type: none"> Positive cash flow in year 2 		<ul style="list-style-type: none"> Positive cash flow in year 2
<ul style="list-style-type: none"> 13.7 % for a 10-year projection and taking into account the terminal value 	 % IRR	<ul style="list-style-type: none"> A loss at minus > 20% for a 10-year projection taking into account the terminal value

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