Dairy cattle keeping

IN SENEGAL
This document presents results from a study on cross-bred dairy cattle in the Thies and Diourbel regions of Senegal. It is designed to assist cattle keepers in these regions on decision making around keeping cross-bred dairy cattle.

Collaborators on the study
- Ecole Inter-Etats Des Sciences Et Médecines Vétérinaires de Dakar, Dakar, Senegal
- The International Livestock Research Institute, Nairobi, Kenya
- University of Helsinki, Helsinki, Finland
- Natural Resources Institute Finland (Luke), Jokioinen, Finland

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For more information on this study, contact Professor Ayao Missohou: missohou@gmail.com
Cross-bred dairy cattle are both adapted and productive.

- **Zebu Gobra**
  - Adaptation to environment: ✓ ✓ ✓ ✓ ✓
  - Milk yield: ✓ ✓ ✓

- **Zebu Maure**
  - Adaptation to environment: ✓ ✓ ✓ ✓ ✓
  - Milk yield: ✓ ✓ ✓

- **Holstein–Friesian**
  - Adaptation to environment: X
t  - Milk yield: ✓ ✓ ✓ ✓ ✓

- **Montbeliarde**
  - Adaptation to environment: X
  - Milk yield: ✓ ✓ ✓ ✓ ✓

**Cross-bred**
- Adaptation to environment: ✓ ✓ ✓
- Milk yield: ✓ ✓ ✓
Cross-bred dairy cattle can result in high household profit

Profit calculated for herd size of 8 adult cows, no transhumance, and assume use of own bull for mating of indigenous Zebu cows, and artificial insemination for mating cross-bred or exotic cows.

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<tbody>
<tr>
<td>Annual mature female health cost (CFA per cow)</td>
<td>210</td>
<td>425</td>
<td>775</td>
<td>800</td>
<td>1,790</td>
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<td>Annual mature female feed cost (CFA per cow)</td>
<td>72,500</td>
<td>193,000</td>
<td>198,500</td>
<td>394,500</td>
<td>736,000</td>
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<td>Annual animal housing cost (CFA per herd)</td>
<td>2,000</td>
<td>2,000</td>
<td>61,000</td>
<td>112,500</td>
<td>112,500</td>
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<td>Annual milk-offtake (litres)</td>
<td>175</td>
<td>568</td>
<td>508</td>
<td>1,315</td>
<td>1,422</td>
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<td>Young male sale price (CFA per animal)</td>
<td>176,000</td>
<td>176,000</td>
<td>536,000</td>
<td>536,000</td>
<td>933,000</td>
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<tr>
<td>Profit (CFA per cow per annum)</td>
<td>60,235</td>
<td>142,041</td>
<td>206,430</td>
<td>445,585</td>
<td>373,716</td>
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<tr>
<td>Animal type</td>
<td>Cost of health-care</td>
<td>Cost of feed</td>
<td>Cost of animal housing</td>
<td>Lactation milk yield</td>
<td>Young male sale price</td>
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**Profit**
## Cross-bred dairy cattle require good management

### Good management over life of animal

- Good feed all year round
- Good water
- Good health care
- Housing to provide shade
- Hygenic milking and milk storage
- Limited walking (no transhumance)

### High productivity (milk & calves) and high profit

- Comes in heat quickly – short time between calvings
- Low abortions / still births
- Low calf mortality
- Good calf growth
- High milk yield
Breeding cross-bred dairy cattle: cross-bred bull or cross-bred bull semen

1. Mate Zebu cow to exotic bull to create first cross-bred (F1)
   - Zebu cow
   - Exotic bull
   - Cross-bred (F1)

2. Mate cross-bred cow to cross-bred bull semen
   - Cross-bred Zebu cow
   - Cross-bred bull semen
   - Cross-bred

3. Continue to mate cross-bred cows to cross-breed bulls (naturally or via artificial insemination)
Breeding cross-bred dairy cattle: rotational mating

1. Mate Zebu cow to Exotic bull to create first cross-bred (F1)
   - Zebu cow
   - Exotic bull
   - Cross-bred (F1)
   - Genetic profile

2. Mate cross-bred cow to Zebu bull
   - Cross-bred cow
   - Zebu bull
   - Cross-bred (F1 backcross to Zebu)
   - Genetic profile

3. Mate cross-bred cow to Exotic bull
   - Cross-bred cow
   - Exotic bull
   - Cross-bred (backcross to Exotic)
   - Genetic profile
4. Mate cross-bred cow to Zebu bull

Cross-bred cow + Zebu bull → Cross-bred (backcross to Zebu)

Genetic profile

5. Mate cross-bred cow to Exotic bull

Cross-bred cow + Exotic bull → Cross-bred (backcross to Exotic)

Genetic profile

6. Continue to mate cross-bred cows alternatively between Zebu and Exotic bulls
Decision-making on keeping cross-bred dairy cattle

How will I breed the animals?

- Can I access cross-bred semen?
- Can I receive training/advice on preparing animals for artificial insemination?
- Can I access good quality Zebu and Exotic bulls or semen?

Can I provide good animal management?

- Can I receive training/advice on keeping cross-bred animals?
- Who will provide labour for caring and milking of animals?
- Can I provide adequate and safe feed – including during the dry season?
- Can I milk hygenically?
- Can I join an organization for better input prices?
- Can I access credit to purchase inputs if needed?
Can I sell the milk?
- Who will provide labour for processing and selling of milk?
- Who will buy the milk?
- Can I join an organization for better milk sale prices?
- Who will control the income from the sale of milk?

How will this affect other livelihood activities?
- Will there be enough time for child-care and other household activities?
- Will there be enough time for other livestock, cropping?
- Will there be enough time for off-farm activities?

For more information on keeping cross-bred dairy cattle please contact:

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<thead>
<tr>
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Questions:
- Who will provide labour for processing and selling of milk?
- Who will buy the milk?
- Can I join an organization for better milk sale prices?
- Who will control the income from the sale of milk?

- Will there be enough time for child-care and other household activities?
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