**TABLE 1 -** Agroforestry systems characterization observed in the field, in Alenquer, Pará State, Brazil

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **AF ¹** | **Spacing (m)** | **Total property area****(ha)3** | **AF’s useful area** **(ha)** | **Age****(years)** | **Tree****cumaru** | **Cassava4** |
| **Cassava2** | **Cumaru** |
| A | 1 x 1 | 6 x 6 | 12 | 0,3 | 7 | 72 | 2695 |
| B | 1 x 1 | 12 x 12 | 6,5 | 0,4 | 10 | 24 | 3877 |

**Source:** Prepared by authors.

 1 AF: agroforestry system; ² This spacing and cassava plants presented numbers composed only the AF-A in the first year of planting and the AF-B in the first two years; 3 ha: hectare; 4 Considered rounded values.

**TABLE 2 -** Cost per hectare, the agroforestry system A in Alenquer, Pará state, Brazil.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Specification** | **Year of occurrence** | **Unit¹** | **Cost (R$/unit)** | **Total quantity** | **Total cost (R$ ha-1) ²** |
| **(u)** | **10 years** | **20 years** | **10 years** | **20 years** |
| **Inputs** |
| Seedlings of cumaru | 1 | u | 3.5 | 306.00 | 306.00 | 1071.00 | 1071.00 |
| Insecticide | 1 - 20 | ml | 0.20 | 2085.00 | 4170.00 | 417.00 | 834.00 |
| Subtotal |  |  |  |  |  | 1488.00 | 1905.00 |
| **Establishment** |
| Cleaning the area | 1 | dh | 30.00 | 46.40 | 46.40 | 1390.70 | 1390.70 |
| Alignment, flagging, manual pit of cumaru | 1 | dh | 30.00 | 2.80 | 2.80 | 83.40 | 83.40 |
| Planting cumaru | 1 | dh | 30.00 | 2.80 | 2.80 | 83.40 | 83.40 |
| Preparation of cuttings | 1 | dh | 30.00 | 1.80 | 1.80 | 53.06 | 53.06 |
| Manual pit and planting the cuttings | 1 | dh | 30.00 | 9.40 | 9.40 | 282.97 | 282.97 |
| Subtotal |  |  |  |  |  | 1893.52 | 1893.52 |
| **Harvest** |
| Harvest cassava | 2 - 4 | dh | 30.00 | 28.30 | 28.30 | 848.92 | 848.92 |
| Harvest cumaru | 4 - 20 | dh | 30.00 | 218.90 | 1196.30 | 6567.75 | 35888.06 |
| Subtotal |  |  |  |  |  | 7416.67 | 36736.98 |
| **Processing** |
| Husking of cassava | 2 - 4 | dh | 20.00 | 222.90 | 222.90 | 4458.22 | 4458.22 |
| Peeling, wash, trituratying and pressing cassava | 2 - 4 | dh | 30.00 | 74.30 | 74.30 | 2229.11 | 2229.11 |
| Cassava flour Roasting | 2 - 4 | dh | 50.00 | 148.60 | 148.60 | 7430.37 | 7430.37 |
| Subtotal cassava |  |  |  |  |  | 14117.71 | 14117.71 |
| Breaking of the fruit, selection and drying cumaru almond | 4 - 20 | dh | 30.00 | 322.70 | 1597.90 | 9682.14 | 47937.72 |
| Subtotal cumaru |  |  |  |  |  | 9682.14 | 47937.72 |
| Subtotal of processing |  |  |  |  |  | 23799.85 | 62055.43 |
| **Maintenance** |
| Pruning | 2 - 3 | dh | 30.00 | 5.20 | 5.20 | 156.38 | 156.38 |
| Manual weeding | 1 - 20 | dh | 30.00 | 160.10 | 200.20 | 4803.84 | 6004.80 |
| Pest control | 1 - 20 | dh | 30.00 | 104.30 | 208.50 | 3127.50 | 6255.00 |
| Subtotal |  |  |  |  |  | 8087.72 | 12416.18 |
| Land Annual Cost | 1 - 20 | dh | 28.00 |  |  | 280.00 | 560.00 |

**Source:** Prepared by authors.

¹ dh: day man; ²Total cost current.

**TABLE 3** - Cost per hectare, the agroforestry system B in Alenquer, Pará state, Brazil.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Specification** | **Year of occurrence** | **Unit¹** | **Cost R$/unit** | **Total quantity** | **Total cost (R$ ha-1) ²** |
| **(u)** | **10 years** | **20 years** | **10 years** | **20 years** |
| **Inputs** |
| Seedlings of cumaru | 1 | u | 2.00 | 77.00 | 77.00 | 154.00 | 154.00 |
| Insecticide | 1 - 20 | ml | 0.20 | 750.00 | 1500.00 | 150.00 | 300.00 |
| Subtotal  |   |   |   |   |   | 304.00 | 454.00 |
| **Establishment** |
| Cleaning the area | 1 | dh | 30.00 | 10.00 | 10.00 | 300.00 | 300.00 |
| Alignment, flagging, manual pit of cumaru | 1 | dh | 30.00 | 0.70 | 0.70 | 21.00 | 21.00 |
| Planting cumaru | 1 | dh | 30.00 | 0.70 | 0.70 | 21.00 | 21.00 |
| Preparation of cuttings | 1 | dh | 30.00 | 2.10 | 2.10 | 63.41 | 63,41 |
| Manual pit and planting the cuttings | 1 | dh | 30.00 | 11.30 | 11.30 | 338.17 | 338.17 |
| Subtotal  |   |   |   |   |   | 743.58 | 743.58 |
| **Harvest** |
| Harvest cassava | 2 - 4 | dh | 30.00 | 33.80 | 33.80 | 1041.51 | 1041.51 |
| Harvest cumaru | 4 - 20 | dh | 30.00 | 26.30 | 146.90 | 787.50 | 4406.25 |
| Subtotal  |   |   |   |   |   | 1802.01 | 5420.76 |
| **Processing** |
| Husking of cassava | 2 - 4 | dh | 20.00 | 246.70 | 246.70 | 4934.04 | 4934.04 |
| Peeling, wash, trituratying and pressing cassava | 2 - 4 | dh | 30.00 | 82.20 | 82.20 | 2467.02 | 2467.02 |
| Cassava flour Roasting  | 2 - 4 | dh | 50.00 | 164.50 | 164.50 | 8223.39 | 8223.39 |
| Subtotal cassava |   |   |   |   |   | 15624.45 | 15624.45 |
| Breaking of the fruit, selection and drying cumaru almond | 4 - 20 | dh | 30.00 | 47.00 | 257.00 | 1411.20 | 7711.20 |
| Subtotal cumaru |   |   |   |   |   | 1411.20 | 7711.20 |
| Subtotal of processing |   |   |   |   |   | 17035.65 | 23335.65 |
| **Maintenance** |
| Pruning | 2 - 3 | dh | 30.00 | 1.30 | 1.30 | 39.38 | 39.38 |
| Manual weeding | 1 - 20 | dh | 30.00 | 169.30 | 250.00 | 5080.32 | 7499.52 |
| Pest control | 1 - 20 | dh | 30.00 | 37.50 | 75.00 | 1125.00 | 2250.00 |
| Subtotal |   |   |   |   |   | 6244.70 | 9788.90 |
| Land Annual Cost | 1 - 20 | dh | 28.00 |   |   | 280.00 | 560.00 |

**Source:** Prepared by authors.

¹ dh: day man; ²Total cost current.

**TABLE 4 -** Economic indicators of agroforestry systems in Alenquer (PA), Brazil, for 10 and 20 planning horizon

|  |  |  |  |
| --- | --- | --- | --- |
| **Economic indicators** | **Unit** | **10 years** | **20 years** |
| **AF - A** | **AF - B** | **AF - A** | **AF - B** |
| NPV | R$ ha-1 | 14444.91 | 15666.39  | 48286.58  | 17902.70  |
| EPB | R$ ha-1 year-1 | 2056.63 | 2230.54  | 4557.91 | 1689.89 |
| BCR | - | 1.46 | 1.75 | 1.86 | 1.79 |
| LEV | R$ ha-1 | 28980.11 | 31461.67  | 64712.70  |  23738.06  |
| ACP almond | R$ kg-1 | 18.20 | 55.49  | 11.79  | 26.26  |
| ACP cassava flour  | R$ kg-1 | 1.19 | 0.80  | 1.19 | 0.80 |
| ACPFL | R$ day-1 | 4.77 | 53.98 | 44.95 | 50.97 |

**Source:** Prepared by authors.