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## Book of Abstracts



### First high-density protein banks, based on *Morus alba* and *Leucaena leucocephala*, for livestock feeding in Western Africa

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To feed dairy cattle in West African farms, livestock keepers usually combine the availability of natural resources, crops residues and other more or less locally available alternative feed resources. However, despite such strategies the herds nutritional requirements are rarely covered. Among the consequences of such often and unpredictable feeding unbalances are the low production level and calvings seasonality. Thus, this study was intended to design, in partnership with livestock keepers, an innovative forage system that has never been tested under the West African context. The proposed low-input intensive forage production technology, rely on establishing high-density Woody forage banks (WFB). The potentialities of WFB for sustainable forage production, as well as the establishment feasibility under real farm conditions and the effects on the dairy cows production performance was also evaluated. During 18 consecutive months, we monitored the agronomic performance of two widely recognized woody fodder species (one leguminous: leucaena, *Leucaena leucocephala*; and one non-leguminous: mulberry, *Morus alba*), planted at high-density (20000 plants/ha) for the first time in 3 different sites of western Burkina Faso for intensive forage production. Three WFB have been established in 2016 using the «step-by-step» co-design method (Vall et al., 2016). At the first standardization cut, 13 months after planting date (PD), the heights of leucaena and mulberry plants were respectively  $183.4 \pm 20.4$  cm and  $153 \pm 5.3$  cm and lower than reported results ranging from 200 to 300 cm (Wencomo et al., 2009; Martín et al., 2014). These performances were affected by soil quality, termite attacks, drought and agronomic practices such as mulching, shallower planting bed. The high forage yield per ha as well as the nutritional values (crude protein=28 and 19 % for leucaena and mulberry, respectively) confirmed the potential interest of this forage technology for contribution to the farm forage autonomy in this region while improving animal performance. However, special attention must be deserved for adjusting agronomic practices to factors like soil properties, drought, termite attack and fires. The cumulative biomass production over 3 harvests (PD+13, PD+15 and PD+18 months) was  $8.2 \pm 2.6$  t DM/ha and  $1.8 \pm 2.3$  t DM/ha respectively for leucaena and mulberry versus 15 t DM/ha and 10-12 t DM/ha for leucaena and mulberry respectively reported (González-García et al., 2009; Martín et al., 2014). The economic feasibility indicated that production cost of 1 kg of forage has been estimated at 152 franc of the African financial community (FCFA), which could be more competitive if the forage bank is «self-made» (46 FCFA). These results demonstrated the potentialities and feasibility of establishing, with a low-input approach, high-density WFB under the harsh conditions of Burkina Faso, a potential alternative to enhance farms forage autonomy and dairy production for livestock keepers.

**Keywords:** Forage technology, Woody forage banks, Ruminant feeding, Dairy production, West Africa.

#### References:

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