TOWARDS DEVELOPMENT OF SUNFLOWER IN WEST AFRICA: BURKINA FASO AND MALI

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ABSTRACT

For several years, with the support of the French sector of vegetable oils and proteins, a development project on sunflower crop has emerged in West Africa, supported by FAO This program was born of the desire shared Burkinabe farmers, members of the local Unions farmers and French farmers, members of the Federation of Oilseed Producers (FOP) to test the culture, set up the technics, evaluated the potential and develop a sunflower industry (oil and cake). The emergence of such industries is indeed a strategic lever of agricultural and economic development for countries heavily dependent on imports of oil and strong deficit in plant proteins. The program aims to increase domestic oil supply and oil cakes, diversify income sources of family farming and improve the performance and sustainability of farming systems. Technical expertise benefits of support of Terres Inovia and project coordination is ensured by Agropol. After several years of experimentation, it appears possible to realize an analysis of the strengths and weaknesses of the project but also opportunities and risks.

• Strength : An important agricultural development potential for this crop and strong motivation of the actors (professional, institutional organizations and also the private sector).

• Weaknesses: Technical practices are not enough mastered by producers and lead to little motivating incomes; soils are compacted (lake of equipment's, most of the soil preparation is done by hand) and the root system (pivot) is not deep enough. Random climatology like water stress, lack of sustainable support structures for the production and marketing; the strong dependence of seed imported (hybrids) at a high cost; the lack of a sustainable mechanism for pre-financing of the crop year.

• Opportunities: a high demand for edible oil (mainly due to the quality, versus cotton oil or imported oils) and cake for animal feed; a strong national political will.

• Threats: unfair competition from uncontrolled imports; soil fertility problems and an emerging parasitic context (Alternaria helianthii).

Key words : Sunflower, limiting factors, Africa

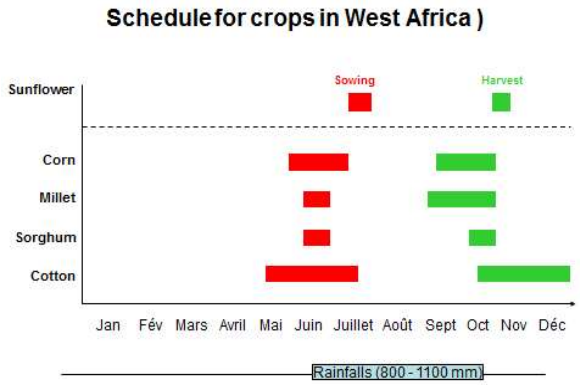
INTRODUCTION

In West Africa, most of the oil came from cotton (local production). Nevertheless, the quality of this oil is bad. According to the climatic windows during the rainy season, we identified some opportunity to grow sunflower during the rainy season. The interest of this crop is not only for the oil (sunflower oils is available on the market, coming from South Africa or from Turkey). The meal is also very well appreciated to feeds cattle's, especially during the dry season.

The sowing date needs to be adjusted as soon as the first rains are well established. This for at least two reasons:

- The soil needs to be wet enough to be plough (by hand or animal traction)
- To prevent from water stress at germination stage

The graph bellows show the best opportunity for the cycle of sunflower. Due to the high level of temperature and the heat units, the growing cycle take place is less than 100 days. The crops yield are subjected to a strong variation mainly due to the water stress, to the poor quality of the soils and a lots of problems with the root growth due to a bad soil preparation and a high level of compaction.



A progress is nevertheless obtained, and the yield ranks from 0.5 t/ha to 2t/ha, improving each year. The economic threshold is around 1 t/ha.

	2011	2012	2013	2014	2015
Average Yield (kg/ha)	267	489	545	450	620
% of farmers that succeeded with more than 1000 kg/ha	3,1	6,1	8,9	8.1	10.2
Average yield > 1000 kg/ha	1267	1222	1305	1150	1300
Records yield (kg/ha)	1884	1860	1904	1900	1920

Following the project for 5 years now, a SWOT analysis could be done.

1. **Strength :**
   - An opportunity of diversification sought by farmers and compared to cotton (crops – often GMO, that required a lot of labor, still pesticide interventions, and delay in the payment ...).

- A crop adapted to the work schedules, especially with the food crops (corn, millet ...)
- An crop “simple”, compare to cotton
- An oil meeting more and more a consumer audience aware of his qualities.
- New opportunities for honey
- The ability to have access to meal for animal feed, the capital in the areas of short rainy season.
- Small mechanization projects (seed driller, harvest)
- A new crop promoted today by the authorities and a well-structured project
- News interests for some breeders (local or international)

2. Weaknesses :

- Yields leveled are too often around 1 t / ha, sometimes less, which does not match the viable economic threshold for crop. The establishment of the crop is often there, but the end of the growing cycle and takes place under high water stress. Seed abortions on capitulates are detected and seed filling defects.
- Logistics for routing inputs remains a critical issue in the absence of reliable local circuits. This needs to be improve (seeds distribution, nitrogen availability, seed collected at harvest)
- It now offers an alternative to genetic seed: continue work on improving populations of Peredovik and / or development of local production of hybrids.
- Soil quality and soil tillage undoubtedly remains one of the major obstacles
- Although culture is considered less restrictive than cotton, some improvements in mechanization are expected by producers
- A sunflower fertilizer at the same price as the cotton fertilizer (that includes subsidies) would undoubtedly an important leverage effect on the development of culture and profitability.
- Structuring the project in islands of production must remain the rule (this could also be classified as "assets" since today is the case .....)
- The industrial tool is undoubtedly an obstacle to date to the success of the project :
- Local initiatives should be well identified and keep under control.

3. Opportunities :

- There is a real desire to diversify among both authorities and producers: the main target is undoubtedly growing cotton (working time, soil depletion, GMO and pesticide use). This is undeniably a "window" favorable for growing sunflower in the heading of diversification opportunities.
- The project is emphasized by the local authorities (Ministry of Agriculture, Research / INERA, ...).
- The project led by AGROPOL for 4 years is now recognized as credible and locally, the work on the project is appreciated by all actors.

- The evidence of the potential of crop in the context of Burkina Faso and Mali, despite the identification of limiting factors well identified, is now established : 1.5 t/ha could be the average goal.
- Since the beginning of this project, there is a mobilization and support of all stakeholders of the French oilseed around this project.

4. Threats :

- The disease risk is not excluded : Alternaria Helianthii, bacterial disorder.
- Potential for lines versus hybrids (due to the cost of hybrids seeds, the returns could be a weak point).
- Up to day, bird damages remains fairly anecdotal (at sowing time as at harvest)
- The curvature of the flower head, triggered by an acceleration of the development phase (appearance of the flower head and flowering) when growth is not yet completed can induce a strong curvature of the stem under the head that could affect translocations during seed filling.

CONCLUSIONS

The potential for sunflower crops during rainy season is real in West Africa. The uses of the oil and of the meal are very well adopted by the local consumers. For sunflower oil, the price of local production could easily compete with the price of imported oil. The valorization of meal is also very good. The crushing stage needs to be securing (size and efficiency of the equipment, seed collections from the field farmers ...). An improvement in the genetic material is also expected, mainly from lines through a local selection program to produced material adapted to the local conditions.