THE SUCCESS OF FODDER PRODUCTION IN SENEGAL

Harvesting maize at a pilot site

Addressing an obstacle impeding the growth of the dairy and livestock sectors

Country: Senegal
Region(s): Thies and Fatick

In recent years, Senegal has grappled with drought diminishing the quality and quantity of livestock feeds. Compounding this is poor technical knowledge of fodder production and the unsustainable use of limited natural resources. In order to face the future successfully, farmers will have to adapt to changing and more extreme weather patterns, and will need to develop environmentally sustainable and efficient solutions to improve animal production.

Private sector-led development

Kirène, a leading beverage company and Senegal's second largest processor and distributor of UHT (ultra-high temperature) milk, is working to find these solutions. The company partnered with IFC and the Private Sector Window of the Global Agriculture and Food Security Program (GAFSP) in 2018 to boost milk production and to train commercial and smallholder farmers on animal husbandry and animal health, good agricultural practices, cooperative organization, and financial management.

GAFSP
global agriculture & food security program

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

Rain-fed and irrigated fodder production

One key solution has been to introduce rain-fed and irrigated fodder production techniques. Fodder is key to maintaining healthy animals. It is also cheaper and more nutritious than the industrial concentrates used by many Senegalese farmers. Fodder cultivation is well suited for integrated farming. After the long Sahelian dry season (October to June), fodder production as part of an integrated farming system provides food for Senegal's livestock and dairy herds under a sustainable and profitable production model. It allows for conservation of the soil and, thanks to the significant inputs of organic matter, improves soil health over time rather than continuing its deterioration each year.

Because fodder production is central to increasing the productivity of Senegal's livestock and dairy sectors, the promotion of fodder crops remains a central priority of the Ministry of Livestock and Animal Production. The need to boost fodder production is particularly acute given the country's shrinking grazing areas and depleted water resources, which makes feeding domestic animals increasingly complex.

What is fodder?

Fodder refers to a variety of crops produced primarily as animal feed, rather than plants that animals forage by themselves in open fields. Fodder can come in the form of hay, straw, silage, compressed and pelleted feeds, oils and mixed rations, and sprouted grains and legumes. Source: FAO

What are fodder crops?

Fodder crops are plants that have been found to produce high yields of plant material, are high in nutrients, and are particularly suitable for livestock. The plant material from fodder crops can be fed to cattle as both a fresh green crop during the rainy season and in conserved form during the long dry season. Although a wide variety of crop species may be used for fodder production, farmers should select varieties that are suitable to their specific climate and the needs of their livestock. In the Fatick region, for example, farmers grow sorghum, millet, maize, and cowpeas, all of which are adapted to produce suitable yields in the hot environment.

Key figures

In Senegal, the livestock sub-sector generated **CFA francs 462.7 billion** (over $800m) in added value in 2019.

The dairy sub-sector produced **264 million liters** of raw cow milk in 2019.

Livestock farming in Senegal is a driving force of the economy: The livestock industry in Senegal employs **350,000 families**, or about three million people (around one-fifth of the population) and represented 3.8 percent of GDP on average between 2014–2019.

In 2017, milk consumption in Senegal was **30.2 liters per capita** compared to 37 liters/capita/year in Africa and 104 liters/capita/year globally, according to World Bank data.

Livestock farming is practiced by **47 percent of rural households** in Senegal. However, milk supply remains low in Senegal and is estimated by the Food and Agriculture Organization (FAO) at **34.8 liters per capita** per year.

Source: Plan Sénégal Emergent -PSE - Etude d'évaluation d'impacts des mesures incitatives applicables pour le développement de la chaîne de valeur du lait local; Ministère de l'Elevage et des Productions Animales – Rapport de revue sectorielle 2018

Planting of Salanes (Euphorbia balsamifera) *along a contour line to create a permanent antierosive strip.*

Crops for animal production

Convincing farmers to grow crops for animal consumption can be difficult. In Senegalese culture, crops are grown for household food consumption and commercial sale, not for livestock. Unfortunately, this has limited the growth potential of the country's dairy sector to date.

Analysis conducted by IFC under the IFC Kirène Dairy Project, with the technical support of the Sustainable Crop Production Platform, identified limited and low-quality animal feed during the dry season as one of the central obstacles to the sector's growth in Senegal. The project therefore focused its activities on providing training materials and coaching on how to use appropriate farm equipment and inputs, and expertise to help farmers grow climate-resilient fodder crops that could increase milk production.

Production of irrigated fodder

At the beginning of the project, the team piloted the production of fodder using irrigation to increase the quality, quantity, and predictability of crop yields. In addition to crops typically grown by farmers, Guinea grass (*Panicum maximum*), a large perennial bunch grass that is native to Africa, was selected due to its high nutritional value. The project tested its cultivation on several farms around the regions of Thies and Fatick to determine its local performance. The Dabakh Farm, a Kirène supplier, produced two types of fodder on a 37-hectare plot, seven hectares of which were irrigated to produce Guinea grass, while 30 were used to produce sorghum under rain-fed production. Other large farms that supply Kirène, especially those with access to a reliable and sustainable water source such as a borehole, were trained and supported to develop similar production areas.

Thies and Fatick have suffered from depleted water resources, which creates pressure to conserve water for domestic needs. Under these conditions, the project team decided to focus on fodder crops that could be grown under rain-fed conditions using practices to improve soil and water management. With the support of experts from the IFC-Sahel Irrigation Initiative Project, agronomists, cooperative members in the Fatick region, and farmers in the north of Senegal were trained to increase production using the techniques of contour cultivation to improve the efficiency of rainwater utilization.

Training in fodder production

Participants received technical training in fodder production and were provided with additional support to ensure that practices were adopted on their own farms. Training was completed in several phases:

- Development of sites with the installation of anti-erosion strips along the contour lines
- Sowing and planting of perennial grasses, bushy species and trees along the contour strips to make them permanent
- Creation of a living fence built of thorny species around the fields, to reduce the risk of overgrazing by cattle during the dry season
- Selection of fodder species according to environmental and climatic conditions
- Contour seeding
- Multiplication of fodder species
- Crop maintenance
- Harvesting of fodder species
- Use of organic waste and crop residues to maintain soil nutrients.

In Thies and in the northern part of the country, Guinea grass was introduced under irrigation. In Fatick, the fodder crops selected for rain-fed cultivation included sorghum, maize, cowpeas, and millet.

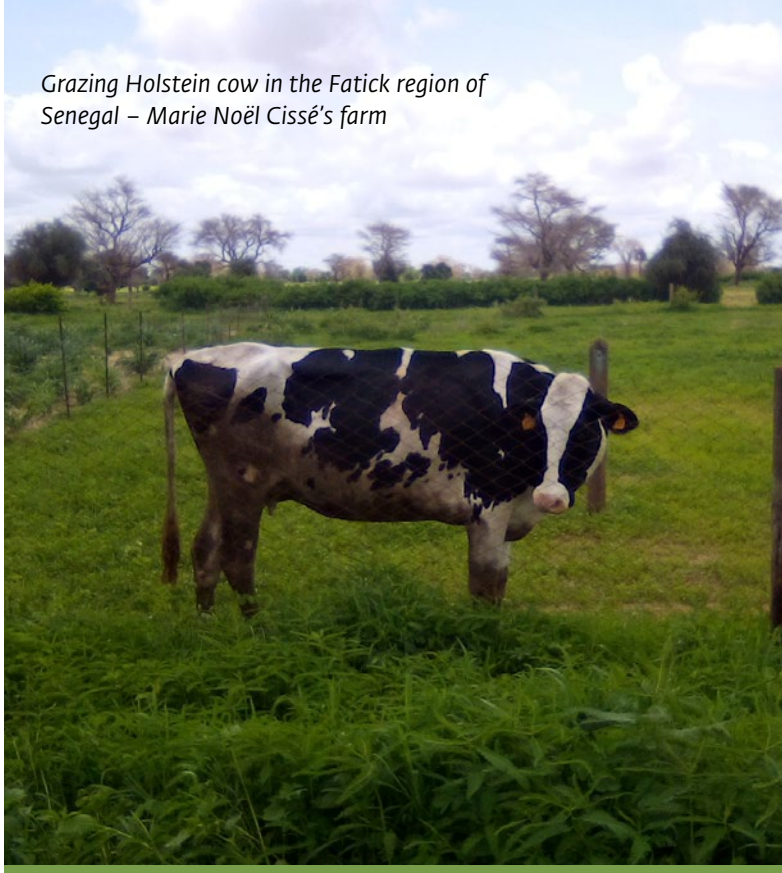
The project's success generated a broader increase in demand, with farmers outside the program and living in the surrounding areas expressing interest in being trained so that they could start their own rain-fed fodder production on their individual plots.

IFC International Finance Corporation WORLD BANK GROUP
Creating Markets, Creating Opportunities

GAFSP global agriculture & food security program

IFC
2121 Pennsylvania Avenue, N.W.
Washington, D.C. 20433 U.S.A.

www.ifc.org



Grazing Holstein cow in the Fatick region of Senegal – Marie Noël Cissé's farm

Project results

Training in sustainable fodder production was a huge success among farmers. The results were also impressive:

14 sites were developed and set up as "farm schools."

18.65 hectares of land were sown.

Over 900 people participated directly in the fodder production program.

Farm schools that have complied with GAP have seen their **yield double** compared to previous years.

4 tons/hectare of fodder were produced.

Fodder types grown included **sorghum, maize, cowpeas, and millet**—all rain-fed—as well as irrigated Guinea grass in the northern part of the country and on some commercial farms in Thies that have access to boreholes.

Visit the VR tour >