

Policy Brief

Reduced dependency on chemical inputs

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Promoting agroecological alternatives in Senegal

In Senegal, many farmers use synthetic mineral fertilizers and pesticides to increase their yields. These relatively expensive products are still accessible to most farmers because of the ubiquitous sales outlets that have sprung up since the 1990s with the liberalization of the input market, on the one hand, and the continuity of subsidies since independence, on the other. While they bring undeniable short-term benefits, they lock farmers into a technical and economic model that is not very efficient or resilient.

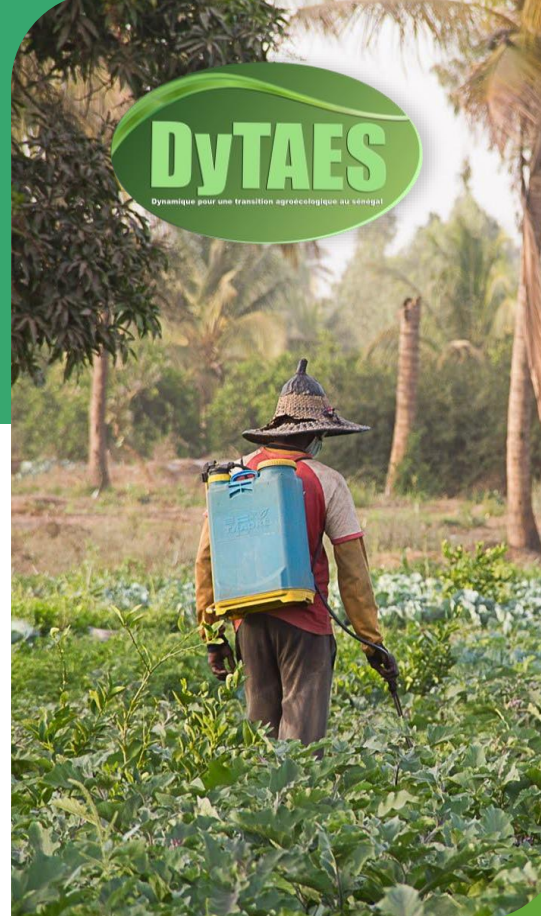
The systematic use of mineral fertilizers without the addition of organic matter contributes to soil impoverishment in the medium term, while the regular use of pesticides leads to pest resistance.

Producers are then forced to increase the doses of fertilizers and insecticides in order to maintain the same yields on their devitalized soils and to cope with increasing pest pressure.

Senegalese agriculture consumes almost 600 tonnes of solid pesticides and 1.3 million litres of liquid pesticides every year, at a cost of over 11 billion CFA francs. However, some of the pesticides used in Senegal are classified as very dangerous by the WHO and the FAO, due to their major toxicity to health: irreversible damage to the brain and nervous system, kidney function and reproductive disorders, cancer, etc.

Chemical fertilizers and pesticides represent a major risk to human and animal health and to the environment (water, soil and air pollution).

It is therefore vital to reduce Senegalese agriculture's dependence on chemical inputs and to favor alternative agroecological practices such as organic fertilization and integrated crop protection.



La Dynamique pour une Transition Agroécologique au Sénégal (DyTAES)

is a network of farmer organizations, consumers, NGOs, research and training institutions, local elected representatives and businesses.

From 7 February to 15 March 2022, DyTAES consulted thousands of people in 14 localities spread across Senegal's 6 eco-geographical zones.

This policy brief is a summary of the issues discussed about productive water and the recommendations made to the State and local authorities.

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Problems with fertilizers and pesticides

Far from being controlled, the systematic use of chemical products considerably increases production costs and often exceeds farmers' means. Numerous formulations or combinations of molecules are currently on the market, to the detriment of public health and the environment.

Inappropriate use of pesticides and lack of awareness of alternatives

Most farmers use pesticides without any knowledge of the risks, or access to recommendations for use: they apply them unprotected, with excessive frequency, at inappropriate dates, doses and formulations. Only a minority of farmers know about and use bio-pesticides.

Limited control capacity at State level

State controls on the marketing of pesticides are inadequate, given the scale of sales of unapproved and/or counterfeit pesticides. There are not enough officials to control the entire country.

In accordance with the regulatory texts, Senegal is in the process of gradually eliminating the very dangerous pesticides banned by the international and sub-regional community. However, **to date, almost half the pesticides used in the country have not been approved** by the Sahelian Pesticides Committee, which is responsible for West African regulations.

Impacts on human and animal health and on the environment

According to the FAO, every year thousands of people contract illnesses caused by exposure to pesticides. These include cancer, neurological disorders and reproductive problems. Cases of pesticide poisoning have been reported in Senegal. A study has also shown that pesticide residue levels in Senegal's agricultural produce exceed FAO/WHO and European Union standards.

This contamination is just as harmful to the general public, through their daily consumption of fruit and vegetables, as it is to flora and fauna.

The systematic use of pesticides is leading to the development of resistance among pests and a significant loss of auxiliary biodiversity. This situation is forcing growers to treat more and more. The discharge of drainage water laden with nitrates, phosphates and pesticide residues also affects water quality.

Livestock farming also consumes toxic veterinary products, putting consumers at risk. The unbridled use of antimicrobials contributes to the development of antibiotic resistance, now considered by the WHO to be one of the most serious threats to global health and food safety.

Subsidized organic fertilizers benefit a minority of farmers

Despite the recent rise in the price of synthetic fertilizers, the price of organic fertilizers remains higher, despite the subsidy granted by the State from 2021. 85% of producers have not yet been able to benefit from this subsidy, due to a lack of information, limited quantities and low coverage (only half of the regions have received solid fertilizers). **In 2021, the subsidy for organic fertilizers represented only 2.17% of the quantities of fertilizers subsidized**, i.e. 3,400 tonnes of solid fertilizers and 67,750 litres of liquid fertilizer.

A system that maintains dependence on chemical pesticides and fertilizers

Even if producers are aware of the health and environmental risks, they find themselves locked into an "all chemicals" system (subsidies, research, supervision, etc.). This is all the more true given that the local market mainly values the visual quality of products, and no added value is placed on their health or environmental quality.



Solution: Reduce the use of chemical inputs and promote agroecological alternatives



In view of the economic, health and environmental issues at stake, increasing agricultural productivity while reducing the use of synthetic fertilizers and pesticides is one of the major challenges for food security in Senegal.

By promoting plant and animal diversity, and stimulating synergies between different plants and species, agroecological production systems have the capacity to maximize the resilience of agroecosystems, while preserving the environment's natural resources and people's health, and mitigating the effects of climate change.

Agroecology encompasses all agricultural practices, derived from endogenous and scientific knowledge, based on the optimal use of natural resources to minimize or even eliminate the use of synthetic inputs and increase the resilience, health and autonomy of farms (see *soil fertility restoration practices in the dedicated note*).

To combat crop pests and diseases, agroecology prioritizes preventive methods that optimize interactions between animal and plant communities within the agroecosystem. The aim is no longer to treat symptoms – this is a last resort – but rather to amplify the ecological processes that slow down the development of bio-aggressors, namely :

- grow healthy plants and ensuring healthy soils by choosing appropriate seeds and varieties, crop rotations and combinations, etc.
- use conservation biology: reduce pest populations using beneficial organisms, trap plants or the push-pull technique, etc.
- curative measures, where necessary and after risk assessment, using bio-pesticides, cultivation techniques and the promotion of natural preparations.

"We have seen agroecological practices improve the fertility of soils previously degraded by drought and the use of chemical products. We have seen producers' incomes increase thanks to the diversification of crops and the establishment of new distribution channels. We have seen local knowledge enriched by modern science to develop techniques inspired by the living world and capable of reducing the impact of climate change. And we have seen all these results multiplied tenfold when they are supported by a favorable political framework, which places the protection of natural resources, customary land rights and family farms at the heart of its action".

Dr. Papa Abdoulaye Seck, Ambassador of Senegal to Italy, Permanent Representative to the FAO, former Minister of Agriculture and Rural Equipment of Senegal

The challenge of scaling up successful innovations and adopting agroecological practices is at the heart of everyone's concerns. This challenge requires major and unambiguous support from public policies.

Recommendations

The producers and breeders consulted by DyTAES recommend to the government:

- the urgent elimination of the use of very dangerous pesticides and the gradual elimination of other pesticides in favor of agroecological crop protection;
- the rational and controlled use of veterinary products.

Regulations and applications

- Strengthen national pesticide regulations and enforcement to eliminate unregistered active ingredients in compliance with international conventions;
- Train sellers of pesticides/veterinary medicines to recognize fraudulent products (unregistered and repackaged) and their dangers;
- Check the composition and quality of subsidized organic fertilizers before distribution.

Raising awareness and promoting agroecological practices

- Raise public awareness, particularly among farmers, of the dangers of chemical inputs for health and the environment, and of agroecological practices;
- Encourage agro-sylvo-pastoral integration by promoting cereal-legume associations, Assisted Natural Regeneration, dual-use varieties (sorghum, cowpea, millet), household biodigesters and support for cattle fattening.

Continuous capacity building

- Increase the number of agricultural advisers, provide them with sufficient resources and enhance their skills in relation to agroecological practices;
- Train farmers, farm workers and relays in identifying diseases and pests, choosing and using appropriate treatments, and agroecological practices;
- Develop agroecology training and installation modules for young people in training centers throughout the country;
- Include environmental training in school curricula and train pupils in composting waste.

Incentives for the adoption of agroecological alternatives

- Facilitate access to approved organic inputs for family farms throughout the country by increasing subsidies and improving distribution through the involvement of DyTAES/DyTAEL members (farmer's organizations, town councils, etc.) in distribution committees;
- Support the setting up of organic input manufacturing and composting units in each council;
- Increase the subsidy for fodder cowpea seed, and include seed/cuttings from fodder crops such as maralfalfa in the subsidy;
- Support local craftsmen in the production of agricultural equipment adapted to agroecology.

Research, development and knowledge sharing

- Prioritize agro-ecology in research, training and advisory programs to develop innovative organic fertilization and biological control practices;
- Support participatory and demonstrative research in school fields on the effectiveness and use of organic inputs and other agroecological practices;
- Produce and disseminate technical fact sheets and videos in local languages on agroecological practices for different crops.

Sources

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