

Commercial licensing for multiplication of TEGO® and TELA®

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Summary

Improved maize varieties often do not reach the hands of farmers in Sub-Saharan African countries due to limited investments in the seed production sector close to communities growing this key staple food. The African Agricultural Technology Foundation (AATF) has successfully overcome this challenge by setting up public-private ventures for commercial multiplication of high yielding drought-tolerant TEGO® and TELA® maize. Enterprises in seven African countries now produce seed of these elite varieties and supply millions of farmers via this route, supported by a licensing model and start-up training. The certified multiplication process includes a series of steps and precautions so that true-to-type seed is produced from parent material with high germination rates. Hybrid maize varieties attract a high market value and therein lies great opportunity for businesses to generate returns on investments from seed multiplication and development of new lines. Major increases of food and nutritional security and farm incomes have been realized in regions where commercial seed systems for TEGO® and TELA® maize were put in place since these varieties produce higher grain yield and quality than commonly cultivated lines under normal and unsatisfactory rainfall.

Technical Description

New improved traits in maize varieties developed by breeding companies and institutions can be readily made available to farmers by licensing out seed production and distribution via a commercial transfer of rights with businesses. This involves an agreement between the holder of intellectual properties for maize varieties, or a representative dealership, and a legally eligible person from the enterprise that wants to multiply and sell seed commercially. AATF and its partners work together to create an enabling environment for regulatory approval of new biotech seeds and commercial multiplication of seed by government agencies concerned with plant health and trade. In the year 2017, a total of 2,371 ton of DroughtTEGO® and 13 ton of TELA™ hybrid seeds were sold and planted on an estimated 95,000 hectares of farmland, which benefited roughly 1.4 million people by enhancing the amount of harvested grain for subsistence and sales. At the end of 2018, variety licenses were signed with 38 seed companies from seven countries in SSA to commercialize TEGO and TELA® maize, as well as test new lines. The legal framework for intellectual property and breeder rights that is built into

commercial variety licensing ensures safe market entry and attractive returns on investment for developers of hybrid maize.

Uses

Commercializing the multiplication of hybrid maize seed has proven to be a dependable and fast route for bringing new and high-yielding varieties to the market in geographically and socially diverse areas; ranging from dryland to humid tropical agroecosystems, and from subsistence to large-scale production. All countries in SSA have got well-established plant variety protection legislation and plant breeder rights in place that provide an enabling environment for licensing of hybrid seed multiplication. In a commercial agreement, the most common territory is that of a country but it can also be part of a country, one or more countries, continents, or even the world. There are more than 100 lines of conventionally bred DroughtTEGO and 5 lines of transgenic TELA® maize that suit a large range of climate and soil conditions found across SSA.

Composition

Variety license agreements have two main parts; the first existing of clauses deals with key rights and obligations of the parties and the conditions that make the framework of the license, such as exclusivity, territory, evaluation of the licensed material, protection of germplasm, national registration and plant variety protection, royalties, effect of termination and reporting to licensor. In these clauses the standards for business cooperation and commercial objectives are set. The second section has “boilerplate” clauses with details about legal processes for dealing with arbitration, relevant law, legality, assignability, warranty and force majeure that are generally applying to such agreement.

Means of application

The multiplication of hybrid maize under a commercial license starts from foundation seed which is supplied under strict quality control standards established by Excellence Through Stewardship (ETS) that involves full life cycle management of agricultural biotechnology products. Seed companies can multiply the improved maize variety as is and are also able to cross the traited inbred lines with their own variety for developing drought and pest resistant lines that are adapted to specific local conditions. The foundation seed with traited inbred lines can neither be used for breeding nor multiplied. For quality control purposes and general uptake monitoring the seed companies have to send back reports on the annual production and sales to the variety owner or broker, which is AATF in the case of TEGO® and TELA®. Genetic purity of the traits in hybrid maize has to be tested through easy and fast laboratory analysis for each batch of seed, and must be discarded if it doesn't meet the quality standards. Seed companies should review their commercial contracts and operating procedures on a continuous basis for making sure the obligations and standards within them are met.

Agroecologies	Dryland area, Highlands, Moist savanna.
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Regions	Africa South of Sahara.
Developed in Countries	Ethiopia, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda.
Available in	Ethiopia, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda.
Solution Forms	Input Supply.
Solution Applications	Seed system.
Agricultural Commodities	Maize.
Target Beneficiaries	Small-scale farmers, Commercial farmers.

Commercialization

Commercialization Category

Commercially available

Startup Requirements

1) Carry out field tests to identify suitable hybrid maize varieties that addresses pertinent challenges faced by the crop in a specific growing area, 2) Draw up a commercial variety license with the breeding company or institution that stipulates contractual obligations and operating procedures, 3) Select an area of land for multiplication that is fertile, properly irrigated and freely drained, and need to be kept free of weeds and pests, and 4) Market the hybrid maize seed with local agrodealers and organize cost-effective production and timely delivery.

Production Costs

Several administrative costs are attracted by a seed company to get a commercial seed multiplication license with a breeding company or institution, including fees for legal advice and registration, environmental impact assessments and phytosanitary permits. Usually no royalties are owed to the variety owner for seed production under commercial variety licenses. Substantial labour expenses are incurred for the general management and detasseling of crop stands in order to produce hybrid maize seed of a high quality. To certify hybrid seed the multiplier company is having to pay for quality control of genetic purity at accredited labs, but these costs are relatively low and depend on the number of genetic traits and their complexity.

Customer Segmentation

Private seed companies, Cooperative associations, Individual farmers

Potential Profitability

Variety licenses are allowing seed companies to broaden and enrich their product portfolio with sought after traits, such as drought tolerance and insect protection in the case of TEGO® and TELA®. Certification of seed offers the benefit of increasing sales because farmers know what they buy and are willing to pay a premium price for that warranty. At macro-level the commercialization of the seed sector increases its competitiveness and transparency which speeds up the delivery of new improved varieties to the teeming masses of farmers, and promote investments from breeding companies to make their varieties available through licensing. At the level of farm enterprises, the access to hybrid maize varieties with drought tolerant and pest resistance traits is reducing risks and improving yields, which contributes to greater food security and incomes. Cultivating maize varieties also costs less as opposed to common lines because these reduce the need for irrigation and pesticide use.

Licensing Requirements

Next to the commercial agreement with the owner of the variety, seed companies entering the multiplication of certified hybrid seed have to comply with national regulations around plant health and food safety that are in place across African countries.

Innovation as Public Good

The TEGO® maize has been developed by the Water Efficient Maize for Africa (WEMA) program and TELA® maize by Bayer Crop Science with the aim to address pertinent challenges in African farming systems, and are thus classified as Regional Public Good. The dissemination of the hybrid lines and brokerage of commercial licenses are performed by AATF.

Solution Images



Institutions



Accompanying Solutions

Drought tolerant and pest resistant maize varieties