



**VARIETAL DIVERSITY
AND ACCESS TO
SEEDS IN EUROPE
IN 7 QUESTIONS**

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1. WHAT DIFFERENT TYPES OF SEEDS EXIST AND HOW CAN FARMERS GET ACCESS TO THEM?

There are several types of seeds:



COMMERCIAL SEEDS

are produced by professionals, then sorted, treated, and tested. They comply with strict standards of purity, germination quality, and health, and meet regulatory requirements to provide farmers with more secure growing. They also guarantee traceability.

Resulting from active research by seed companies, they offer the most advanced genetics and thus a high level of performance such as better disease resistance or better use of natural resources. They also guarantee homogeneous and stable varieties for farmers.



FARM SEEDS

are produced when farmers take the production of their own harvest and re-use it as seed. In this case, when the variety comes from a protected commercial variety, farmers must compensate the seed company for using the genetics which they are the first to benefit from.

In France, since 2011, farmers that grow seeds from protected commercial varieties may, for some crops, use a portion of their harvest as farm seeds. In such cases they must make a royalty payment called a "Mandatory Voluntary Contribution". Smallholder farmers are exempt*.



NON-COMMERCIAL FARMERS' SEEDS

generally come from local, heirloom populations; they cannot be distributed but may be used privately for one's own consumption, for exchange in a non-professional context, or within the strict framework of mutual assistance between farmers.

These seeds cannot be distributed because the quality level is not guaranteed, given that they are not subject to trade rules.



While there is no doubt that commercial seeds have undergone significant development, farmers still remain in control of their choice and have access to these different types of seeds. Farmers do generally use innovations coming from seed companies, because they want to benefit from varieties with higher performance genetics and seeds with guaranteed germination and health qualities so their crops grow better, with higher yields.

The idea that they are obliged to use commercial seeds exclusively, coming from seed companies that have "locked down" the market, is not accurate.

*Outside of Europe and with regard to developing countries in particular, Limagrain is calling for self-sufficiency agriculture to be excluded from the strict application of this contribution system, within the scope of exchanges between communities.

2. WHY IS THERE AN OFFICIAL LIST OF VARIETIES IN EUROPE AND WHAT ARE THE SPECIFIC PROVISIONS FOR HEIRLOOM VARIETIES?



PUBLIC AUTHORITIES HAVE ESTABLISHED A REGULATORY FRAMEWORK THAT DEPENDS ON THE REGISTRATION OF VARIETIES ON ONE OF THE OFFICIAL NATIONAL LISTS IN EACH EUROPEAN COUNTRY.

The creation of the French list in the 1930s resulted from a desire to protect farmers from fraud about the identity of the variety and guarantee seed quality. The first discussions, which took place in the 1920s in the agricultural world and led to the establishment of current seed regulations, involved the concept of “sound and fair seed.”



TO BE REGISTERED ON THE LIST, VARIETIES MUST COMPLY WITH SEVERAL QUALITATIVE CRITERIA. THEY MUST EACH BE:

DISTINCT FROM VARIETIES ALREADY REGISTERED

HOMOGENEOUS

STABLE



THESE 3 CRITERIA ARE EVALUATED USING WHAT ARE CALLED **DHS* TESTS**

Some species, which are grown less often (such as pearl millet or arugula and basil), are not subject to the list and, in this case, only the French Consumer Code applies.



HEIRLOOM VEGETABLE VARIETIES

are traditionally grown in specific areas and regions and are threatened by genetic erosion; they are also called “preservation varieties” and are said to be “for non-professionals.” Regulations have a specific provision that allows them to be produced and distributed.

In response to the concerns of some farmers, they benefit from more lenient, adapted provisions compared to other seeds, which allow them to be registered free of charge on the official national list.

They are not subjected to testing for “DHS” criteria, as long as a description of the variety is made available.

VEGETABLES PRODUCED FROM SEEDS OF VARIETIES NOT ON THE OFFICIAL LIST

It should be recalled that their production and distribution are authorized. It is only the sale of seeds of unlisted varieties that is not authorized, due to the protection of growers as indicated above.



* DHS : Distinction of the variety compared to other already registered varieties.
Homogeneity between the individual plants of the variety.
Stability over time of the variety's characteristics.

3. WHY IS PLANT BREEDING ESSENTIAL IN HELPING TO MEET THE AGRICULTURAL CHALLENGES WE FACE?

INNOVATION IS AT THE CORE OF OUR BUSINESS.



As a pure seed company, a cooperative group guided by an agricultural and scientific culture, Limagrain believes that agriculture will continue to advance due to genetic progress and improved farming techniques.

Concerning genetic progress in seeds, **RESEARCH AND DEVELOPMENT** play a major role in helping to meet the agricultural challenges facing us, especially:

THE CHALLENGE OF INCREASING YIELDS BECAUSE IN ORDER TO FEED



close to **10** billion people by 2050
there is a need for an increase of **70** % in agricultural production

THE CHALLENGE OF PROTECTING RESOURCES AND REDUCING THE ENVIRONMENTAL IMPACT,

which requires better water management, accounting for the decrease in available farmland, using fewer chemical products, and, overall, targeting better environmental performance.



WITH MORE THAN **20** % OF OUR EMPLOYEES WORKING IN RESEARCH AND

300

NEW VARIETIES CREATED AND BROUGHT TO MARKET EACH YEAR

we offer varieties that are more productive and better adapted to the climates and particularities of different regions, as well as more resistant to disease.

Plant breeding is one of the main levers for increasing yields required to meet the needs of an ever-growing world population. We are constantly innovating to advance our practices and provide sustainable solutions in order to



PRODUCE MORE AND BETTER.

4. HOW DOES THE WORK DONE BY SEED COMPANIES MEET THE NEEDS OF PLANT DIVERSITY FOR FARMERS AND CONSUMERS?

THE SEED COMPANY BUSINESS IS LARGELY BASED ON OBSERVING NATURE AND PERSEVERANCE.

We have to sow, harvest, select, and sort the best seeds, then classify them before crossing them with other seeds.

Several breeding cycles involving sorting and recombining the best plants are needed to produce a new variety.



Among the different types of seeds (see question 1), **commercial seeds** are the product of research by seed companies constantly seeking to improve existing plant diversity through the creation of new varieties.

For this purpose, breeders keep very large collections of plants and maintain many varieties of the same species.

Each year, the **3,200** varieties of vegetables

already on sale increase by

more than **150** new varieties

In **1971**, there were fewer than **500 varieties** in France.



At Limagrain, we are working on more than **60 species** and we dedicate more than **20 million euros per year** to preserving their genetic diversity of these species.

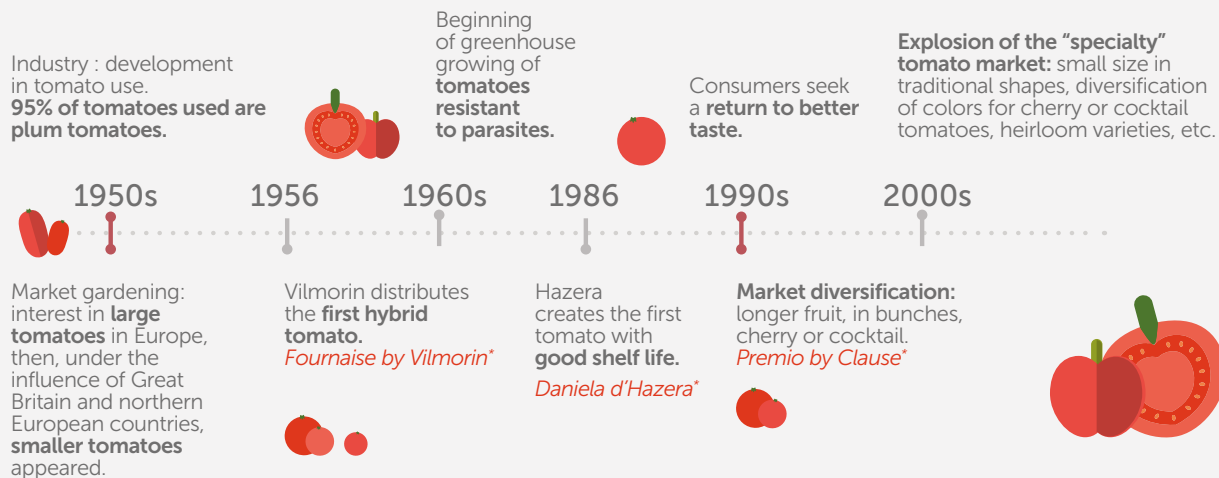


In order to protect and strengthen this diversity, Limagrain made the decision to maintain research lines for a large portfolio of species, (including species for regional markets like witloof chicory, corn salad, etc.). Limagrain also adapts varieties such as melon or tomato, for example, to various zones throughout the world.



4. HOW DOES THE WORK DONE BY SEED COMPANIES MEET THE NEEDS OF PLANT DIVERSITY FOR FARMERS AND CONSUMERS?

PLANT BREEDING AND THE EVOLUTION OF THE TOMATO SINCE 1950



* Examples of tomato seeds created by Limagrain.

5. IN WHAT WAY DO INNOVATIONS BY SEED COMPANIES NEED TO BE PROTECTED?



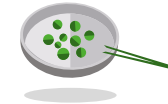
THE PRINCIPLE OF INTELLECTUAL PROPERTY CANNOT BE SEPARATED FROM CREATION

whether in terms of science, literature, or art. Protection for plant research is the same as for that of other creations: it recognizes what creators provide to society and the benefit of their work.

THANKS TO INTELLECTUAL PROPERTY, THE WORK OF CREATORS IS COMPENSATED, WHETHER THROUGH ROYALTIES, COPYRIGHTS, THE EXCLUSIVE SALE OF ONE'S CREATION, ETC.



This is often a virtuous circle because this compensation provides resources to finance future research. It is also a way to enrich our plant heritage over time through the innovation and creation of new varieties.



PLANT BREEDING IS THE PRODUCT OF LENGTHY AND EXPENSIVE RESEARCH

GIVEN THAT IT TAKES BETWEEN

7 and 10 years

of complex work, from the initial crosses to the distribution of a new variety's seeds.

It is therefore important that this work of creation and the investment in research be recognized and protected, just like other creations.

By allowing seed companies to continue their research, intellectual property encourages the improvement and diversification of plant crops, since it grants temporary commercial exclusivity.

6. WHY ARE WE DEFENDING AN INTELLECTUAL PROPERTY PRINCIPLE THAT COMBINES PLANT BREEDING PROTECTION AND ACCESS TO PROGRESS?

AT LIMAGRAIN,

we believe that intellectual property must allow for the protection of plant breeding and at the same time, provide access to genetic progress for future plant breeding.



WITHOUT PROTECTION, RESEARCH FUNDING CANNOT BE SUSTAINED, AND WITHOUT BROAD ACCESS TO GENETIC DIVERSITY, GENETIC PROGRESS CANNOT MEET THE NEEDS OF FARMERS AND CONSUMERS.



The accessibility and diversity of genetic resources have always been the foundation for plant improvement.



Plant breeding is in fact only possible by beginning with pre-existing plants. Access to the most advanced varieties to conduct other improvement projects, while at the same time respecting the ownership of their creators, has allowed breeders to accelerate genetic progress during recent decades and for agriculture to move forward.

We thus advocate for an approach that avoids the risk posed by restricting access to genetic resources

because we believe they should remain available. We must all be able to freely use protected varieties to create new varieties that will enrich biodiversity.

7. WHAT IS LIMAGRAIN'S POSITION ON PROPRIETARY VARIETY PROTECTION CERTIFICATES (PVPC) AND PATENTS?

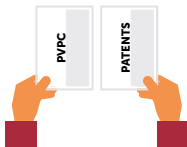
The two main existing intellectual property systems for seeds are the

PROPRIETARY VARIETY PROTECTION CERTIFICATE

an ownership title specifically adapted to plant breeding, and

PATENTS

for the protection of plant innovations.

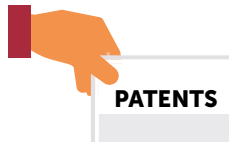


AT LIMAGRAIN, WE VIEW THESE TWO SYSTEMS, PVPCS AND PATENTS AS COMPLEMENTARY, AND NECESSARY TO MAINTAIN A BALANCE BETWEEN ACCESS AND PROTECTION.



The Proprietary Variety Protection Certificate (PVPC) is an intellectual property title granted as part of an international protection system, called *sui generis*. Used solely in the field of plant breeding, it facilitates the protection of varieties and allows them to be accessible to everyone for research and new plant breeding.

This is the reason why we view this as a virtuous system. By encouraging access to the most advanced genetic resources, PVPCs contribute to greater crop biodiversity, given that all protected varieties remain freely accessible to everyone to create new ones.



Patents are the other protection tool for intellectual property; they are also essential for the protection of certain innovations resulting from the science and techniques used in the plant world.

However, Limagrain encourages that their use be measured and complementary to PVPCs in order to protect inventions not related to PVPCs. It is also essential that certain broad uses of patents should not contradict the founding principles that led to the establishment of PVPCs.

In this regard, in Europe, breeding procedures based on plant crosses cannot be patented, a provision Limagrain argued for and won. We were also successful in introducing a breeding exemption into patent law that authorizes anyone to freely use varieties covered by a patent to create new varieties, subject to a license at the time of their distribution, if these varieties still contain the patented part. In the future, we plan to continue to encourage a framework that allows for the protection of inventions without the risk of blocking access to genetic variability.