



Agrobiodiversity in Portugal: SAVE annual Conference 2017



Cachena Cattle in the Nationalpark Peneda-Gerês, Portugal

The “Feiras Novas” (new fairs), a folk festival with market stalls and cattle exhibition, which is held for the past 190 years on the second weekend of September in Ponte de Lima, Northern Portugal, formed the festive framework for the SAVE Annual Conference 2017. The participants were accommodated in the agricultural school in the nearby Refoios in a former monastery. The 11th SAVE seminar on agrobiodiversity, the group work and meetings of SAVE committees also took place in Refoios.

The official representatives of the regional government, the agricultural institute and school emphasized that the genetic resources in agriculture

should be on the agenda of every government and authority. In Portugal, the conservation of livestock is supported by rural development programs.

About 50 autochthonous breeds are listed in the national catalogue; also fruit varieties and more than 300 grape varieties are officially collected and described. The national gene bank for plant genetic resources (Banco Português de Germoplasma Vegetal) in Braga is celebrating its 40th anniversary in 2017. The gene bank has the world's second largest collection of maize varieties. But the private sector in the area of plant genetic resources is, however, still largely under



Samples of the Maize Collection of the National Genebank Portugal

developed in Portugal: there is a cooperation with the Spanish umbrella organization "Red de Semillas" as well as some private initiatives, arbore-tums and variety gardens, but an independent national or regional organization doesn't exist (yet).

The hosting organization FERA (Federação Nacional dos Amadores de Raças Autóctonas) is the national umbrella organization for autochthonous breeds in Portugal and represents 17 breeders' associations. FERA also runs the seed bank for cattle breeds in Portugal.

The SAVE Network is growing



The Council of Cooperation Partners welcomed FERA as a new SAVE network partner. FERA has been known in the SAVE committees already a longer time, since its President Rui Dantas is active in the SAVE

Board of Directors. In addition, the alpine network Pro Patrimonio Montano (PatriMont, www.patrimont.org) was welcomed as a SAVE network partner. PatriMont is concentrated in the central and eastern Alps to obtain cross-border mountain ecotypes of breeds. This is done with regional action groups and in close cooperation with national partners in Austria, Italy, Germany, Liechtenstein and Switzerland.



Agrobiodiversity and the common agricultural policy of the EU

The SAVE network office has initiated animated discussions on the common agricultural policy (CAP, see next article). Initial consultations for the new CAP 2020 took place in the spring of 2017. But this was just the beginning of the political

process. There is a great deal of agreement in the SAVE network that a new CAP must strengthen the smallholder structures. These are especially small-scale farmers, which preserve autochthonous breeds and varieties and provide important ecological services through their small-scale agriculture. It is not acceptable that the top 10% large producers alone account for 55% of the total EU direct payments. In addition to more information for the general public, a more state-independent allocation of subsidies was postulated. Furthermore, the marketing of products and the support of related brands is an important approach for a better EU agricultural policy.

Portugal's diversity in agriculture and nature

The valorisation of traditional breeds and varieties was repeatedly discussed during the exciting and varied excursion program. The Minho cattle (raça Minhota) is a brachyceres cattle of the northern Portugal region of the same name.



The Barrosã and Cachena cattle (picture) are very similar but separate breeds of Steppe cattle type with the imposing horns. These breeds often live in a semi-feral system, just like the Garrana horses, which stand out due to their small stock size. These free-roaming farm animals are a special attraction in the national park Peneda-Gerês. .



Very close to the Spanish border in the Norte region, farms are run on very well-maintained terraces in villages such as Pitões das Júnias, Ermida and Roussas. In the spring, corn and beans



or cereals are cultivated. After the livestock summering in the mountains, sheep, goats and even cattle can devour the grass that has grown after the vegetable harvest, and at the same time fertilize the soil.



The Espigueiros, granary of stone, are witnesses to the traditionally important corn cultivation in the region.

Arca Deli Award 2017

The excursion ended with an opulent dinner in Arcos de Valdevez. For the tender Cachena veal and for the Feijao Tarreste beans prepared with stewed cabbages (*Brassica rapa* var. *Cymosa*) and rice, all participants acted as jury and praised appearance, taste and preparation to the highest.

At this point we would like to remind you that the preservation of traditional diversity is "through the stomach" because it is only when we consume the diversity that the farmers benefit from their products

and can thus continue the in-situ conservation.

In addition to these delicacies, the Arca Deli Award 2017 was awarded to the Dutch beer "Patrijske", which is produced, among other things, with the old wheat variety "Zeeuwse witte". "Pa-trijs" means partridge. The name indicates that the beer will also preserve the Seeland heraldic animal, the partridge.



Two other products were submitted from Switzerland: The Whiskeychnebel (a whiskey smoked sausage specialty from the woolly pig) as well as salami from the woolly pig was also assessed by all participants. The jury was very surprised by the high Swiss prices for those specialties.



A product from the non-food sector was submitted by the Archehof Windeck in Germany: A very sturdy, processed leather bag from the leather of the Glanrind. Also this product has its price as it is produced in a small German factory.

Many of the producers are very reluctant to label their products. As in previous years, the jury stated that there is still too little reference to the specific origin

of the products on the labels. The preservation of our agricultural diversity is worth informing the consumers with clear indications on the product. There is still a very great potential here.

The final highlight of the SAVE annual conference was the traditional parade of the Cachena and Barrosã cattle in Ponte de Lima. Despite their impressive horns, the animals were guided by the traditional sounds through the festival area and the streets of Ponte de Lima. Of course, the audience was kept as far as possible. Nevertheless, no animal veered, no animal was nervous even in the least. A big compliment to the owners who know their animals very well!

Finally, a great praise and thanks goes to the FERA and Rui Dantas, who have put together a rich and exciting program. A big thank you goes also to the mayor of Ponte de Lima, who sponsored such a special meal, as well as to all other actors in the background.

2018 the 25th SAVE Annual Conference will be held in Hungary. Since then ecosystems and the added value will be linked to the conservation work, the conference will take place in June 2018, expected from 25 to 27 June. Make sure you save the date!



EU Common Agricultural Policy (CAP)



learning and discussing the Common Agricultural Policy

The EU Directorate-General for Agriculture and Rural Development (DG AGRI) launched the first phase of the modernisation and simplification of the CAP with a public consultation. The SAVE partners were asked to give their statements. SAVE Foundation was amongst 322,000 submissions from a wide range of stakeholders, including farmers, citizens, organisations (9% NGOs) and other interested parties who participated in the public consultation on modernising and simplifying the CAP. Agriculture and its role in society become increasingly important also for the wider public.

Currently 38% of the EU's budget is spent on the CAP. In the first pillar – the direct payments – 70% of the whole CAP spending is used. Out of this, 750'000 farmers in the top decile receive 55% of all direct payments. Small farmers with a low income receive roughly 25% of the direct payments (source: Bertelsmann Foundation).

The statement of SAVE Foundation in this first consultation for a CAP reform is laid down here:

The current CAP hardly address the needs of extensive livestock farmers across Europe. The EU priorities lay in jobs, growth, investment and a deeper and fairer internal market. In the EU 2030 Agenda for Sustainable Development 17 SDGs (Sustainable Development Goals) are mentioned. Goal 2 addresses responsible consumption and production, goal 13 concentrates on Climate Action and goal 15 targets Life on Land. As a whole the goals aim to eradicate poverty, protect the planet and ensure prosperity for all. On the other hand one of four of farms has disappeared between 2003 and 2013. Currently, 40% of the EU is under agricultural use. Up to now rural development was mainly seen as a development of technology and industrialization. The tighter predatory competition led to the loss of small farmers. But especially farmers with a few hectares of land and small herds are an important part of rural development and sustainability of rural structures in Europe. They have hardly a market or any support for marketing of their local products. Therefore projects and ideas should be launched and supported on a local and regional level with European wide reach (easy but traceable labels with self-declaration systems need to be supported).

Furthermore the way of traditional and adapted breeding and keeping of livestock breeds is nearly

not recognized or supported. Pastoralists are still under pressure because of the means of the term "pasture". Often pastures are created by grazing and include also trees and shrubs. If traditional landscapes should be conserved and not be turned into biodiversity-poor forests in different European areas, these wood pastures have to return, with EU support in an as uncomplicated way as possible.

The cultural heritage within the context of European agriculture, which can be found within breeding and grazing practices as well as within fruit-, crop growing and harvesting is often forgotten. This aspect needs more attention within future rules.

Overall, a completely new approach needs to be discussed, which is capable of supporting the sustainable development of the European rural landscapes: The payments for farms need to be seen in a more holistic way, that includes the way of farming in context with the area, their traditions, cultural and genetic heritage and advanced diversity supporting practices. The new CAP needs to be aligned to the UN 2030 agenda for sustainable development.

Often it is seen that there are good regulations on EU level, but they are nearly not used on a regional or local level. Especially payments should be under EU control and less under national governmental control. Mechanisms are needed which support especially small and medium-scale farmers in the rural areas and not the national bureaucracy. An easy and uncomplicated access to the possibilities the CAP regulations, rules and support with lesser bureaucracy for these farmers is needed.

This statement was agreed by all SAVE Partner Organizations.



The next steps

The outcomes of the consultation have been presented at a conference in Brussels in July 2017

(https://ec.europa.eu/agriculture/events/cap-have-your-say_en). The outcomes of the consultation,

together with other consultation activities, will feed into the Impact Assessment process and will be taken into account in the forthcoming Communication on "Modernising and Simplifying the CAP".

EU food supply chain

Additional processes and consultations will be launched. A three-month public consultation on how to make the EU food supply chain fairer was launched by the European Commission on 16 August 2017.

All citizens and organisations, ranging from farmers to public institutions, are invited to contribute their

views on how to improve farmers' position in the food supply chain, specifically concerning unfair trading practices; market transparency; and producer cooperation here:

https://ec.europa.eu/info/consultations/food-supply-chain_en.

The consultation runs until **17 November 2017** and the results will complement work on the simplification and modernisation of the CAP.

SAVE will keep you informed about the process and development of the EU rules.

Sheep farming and cultural heritage in Kosovo



Shepherdfestival Istog

Every year in July, a traditional shepherd's festival takes place in the Karst Mountains of Suva Planina near the town of Istog (39,000 inhabitants, thermal baths, recreation and hiking areas, today center of dairy processing) in western Kosovo. At around 1800 meters above sea level, Bardoka sheep, a traditional breed of the region, is rounded up and a

festival of music and dance, food and drinks takes place. The shepherds show how quickly and skillfully they can handle the shears and decorate the Bardhoka sheep with artful patterns in the wool. Traditionally only the belly and back is shorn. The rear end is only shorn at lambing time and the head is shorn only if necessary. This Pramenka sheep breed (Pramen = curl) therefore develops regular

Rasta-locks, which give them a particularly ancient appearance.

The rough-wooled Bardhoka sheep are bred in Albania and western Kosovo. They are - in contrast to most Pramenka sheepbreeds - completely white (Albanian *bardhë* = white). The medium-sized sheep have a good fundament and reach a withers' height of 60 (w) to 66 (m) cm and a weight of 35 (w) to 50 (m) kg. Their wool was traditionally used as carpet wool. The milk yield is higher than that of other Pramenka breeds in the Balkans. The animals are driven twice a day to the alpine hut and milked by hand. Since rough carpet wool only achieves a bad market price, the Bardhoka sheep are mainly used as milk suppliers alongside their meat. The total population of Bardhoka sheep in Kosovo and Albania is currently around 18,000 animals (total of 12,000 sheep registered in Kosovo).

On the high plateau of Suva Planina near the Montenegrin border, the highly endangered Balusha sheep are also grazed in Summer. Balusha sheep are slightly smaller than the Bardhokas and have a



dark head and dark legs. Balusha sheep are more robust than the Bardhokas. Nevertheless, they are highly endangered with about 300 animals. The low wool prices play an important role. The Balusha sheep on the Suva Planina Hochebene belong to only one dedicated owner. This shepherd is very well organized and reliable, but there is an acute danger should this breeder abandon sheep farming for some reason. Kosovo is a very poor country. State subsidies can hardly be paid. The valorisation of a breed thus contributes significantly to its conservation.

Traditional cultural technique in the Karst



As in all Karst landscapes, in the Karst of the Suva Planina plateau there is an acute water deficiency. In order to counter this deficiency, the shepherds have use a special culture technique since generations: the bottom of a karst hole, which lies in a favorable wind direction, is sealed with tarpaulins. On the windward side, brushwood is set up as a fence so that the snow can accumulate in the hole during the cold winter. In the late winter the shepherds come to the plateau and cover these holes, which are now filled with snow, with a thick layer of twigs. By means of hollowed-out logs - or modern ones with garden hoses - the meltwater is then directed to the trough in the summer.



End of July the beer can be kept cool with ice!

As in the Central European alpine regions, the alpine pasture is carried out in three stages: until the spring, the sheep are in the village, in April they are fed to the middle alpine pasture and in June the sheep graze at an altitude of up to 2000 meters above sealevel.

Wool of autochthonous sheep

Sheep farming in general, but especially of traditional breeds in Kosovo is declining, as in many other regions of Europe. Since the prices of wool, especially those of the coarse sheep, have been absurdly low for years, sheep keeping is often no longer worthwhile. In addition, the conditions of life after the war have changed fundamentally in many rural regions. Before the war there was a well-functioning textile industry in Kosovo. Wool was often processed in a traditional way. Nearly every family in the country had a few sheep.



Exchange of experience with wool processing in Stubbla, Kosovo July 2017

A well-known wedding tradition was that the fiancé brought his bride raw wool, she converted it into yarn during the engagement period, made carpets or knitwear out of it, and handed over it to the groom's family on the day of her wedding. In almost every household therefore there were spindles, weaving frames and other devices for the production of woolen products. In the 1980s and particularly during the Balkan war, however, the young people went abroad in order to gain a new livelihood. In some villages the family and clan linkage is so strong that there is still a functioning social structure, the children and child children build new houses and keep the infrastructure in motion. But these villages are really living only a few weeks a year, when the remaining grandparents are visited during the holidays. In other villages, where "ethnic cleansing" took place during the war, decay is ubiquitous. There the, mostly old, survivors struggle to survive. According to the World Bank, 34% of the Kosovars live below the poverty level. Unemployment is still very high. But, despite migration and poverty, the population of Kosovo is the youngest in Europe. Income and perspectives on the ground are therefore in demand, in order to counter the migration. In demand, in order to counter the migration.

Conservation and valorisation

For the highly endangered Balusha sheep a conservation program is urgently necessary. In cooperation with the University of Prishtina the "lump risk" of only one owner of a larger herd is to be solved. The animals need to be recorded, described in a herd book system, and a regulated breeding should be established. The valorisation of products needs to be promoted. In order to identify possible products and methods of production, students at the University of Prishtina will conduct interviews with farmers and especially with rural women on traditional knowledge in wool processing and special products. In Istog, there is a women's group, who still has some knowledge of wool processing. However, there are apparently no machines for the processing of raw wool in the whole country. The shorn wool is sold abroad, if there is any market at all. The construction of wool processing in the country currently appears to be very difficult. However, in the course of a conservation project, traditional knowledge is also being collected and re-experienced, there is a real chance of working with experts in wool processing to carry out such a regional development project.

In order to be able to assess the situation in different regions and municipalities in Kosovo, representatives of "Atelier Lanes européennes" (<http://atelierlainesdeurope.eu>), the European organization for traditional wool processing, the "Collection of Diversity" (<http://www.kollektion-der-vielfalt.de>), an organization for the marketing of wool products of autochthonous sheep breeds and SAVE Foundation traveled in July to Kosovo and to Shkodra, Albania.



In Shkodra, Meta Mlogja has been managing a wool manufactory for 12 years and employs about 40 women. Training with processing machines (carding machines, yarns) and looms takes about one year. Approximately 30 kg per year raw wool is processed. In the Shkodra region, the veterinarians gather the raw wool from the shepherds. Carpet products (also tufted carpets) and knitwear are also

made on order from abroad. Meta Mlogja is ready to instruct women in Kosovo as well.

Interested and committed individuals, the living tradition with the shepherds in Istog, the revival and application of traditional knowledge, cultural techniques and practices appear to be realistic for a multistage project:

In a first step, the conservation of Bardhoka sheep will be tackled in close cooperation with the University of Prishtina. This includes the recording of traditional knowledge and cultural techniques.

A second stage is the reintroduction of wool processing. This shall take place initially in small steps with handmade gift articles, which are distributed over markets and bazaars to the young migrated family members, but also to e.g. Christmas markets in Central Europe. In a further step a professional but local wool processing will be undertaken.

Once again, it shows how closely an economic livelihood is linked to the preservation of domestic agrobiodiversity. In teamwork, with commitment and respect, the above-described project phases are to be approached as soon as a financial support is also secured.



For further information: office@save-foundation.net

Precision breeding needed to adapt corn to climate change, ancient samples show



The US Corn Belt and European maize owe their existence to a historic change: the ability of this plant, originally from the tropics, to flower early enough to avoid winter. Research led by Cornell University in New York and the Max Planck Institute (MPI) for Developmental Biology in Tuebingen, Germany reveals that indigenous people in the American southwest started the process of adapting

maize to temperate growing seasons 4000 years ago and refined it over the following 2000 years.

From this point onwards, it grew well enough to provide a reliable source of subsistence, mainly in stews and soups. Its nutritional content was also improved - the study finds that some of the archaeological samples had high beta-carotene yellow kernels, the earliest evidence of people eating

yellow corn. The kernels were also likely to be of the popping variety.



Wild Zea mays seeds; Photo: Peer Schilperoord

Farmers adapted it using the genetic diversity of domesticated varieties and wild grass relatives already present in Mexico. Over time, their selections meant that varieties became dominant for gene variants that drive early flowering, enabling them to cope with a shorter growing season and different day-lengths. This took millennia to accomplish.

“We see incredible genetic variation in maize, but it took a long time to accumulate enough of the early flowering variants in the same plant to adapt to short growing seasons. A trait like flowering time is so complex that it involves changes to hundreds of genes,” says Kelly Swarts from Cornell University and now at the MPI for Developmental Biology.

The samples reveal that the first maize successfully adapted to grow in a temperate climate was short, bushy and was likely a pop-type corn compared to modern varieties, or landraces. The authors find that it helped lead to all temperate US and European maize grown today.

“Our findings show that because of its genetic diversity maize has the ability to adapt to just about anything that’s thrown at it” says Swarts. “But we won’t have the luxury of millennia to adapt maize to the environmental challenge of global warming and will need precision breeding, for example with genome-edited crops, to rapidly develop new varieties. Maintaining diversity in traditional maize landraces is also important. Precision breeding holds great promise, as long as we have a good understanding of what to target by studying the widest possible diversity.”

The scientists studied 15 maize samples extracted from fossilized maize cobs discovered in a dry cave shelter known as Turkey Pen in Utah’s Grand Gulch canyon. It was very exciting to carry out the first genetic analysis of the samples since their excavation in the 1970s,” says Hernán Burbano from the MPI for Developmental Biology. “The samples were very well-preserved in this dry environment. Although DNA fragments were short, in some samples up to 80% of the retrieved fragments were maize DNA with only a minor fraction of microbial origin. Consequently, it was possible to characterize genetic variation in each sample across the whole genome,” he says.

The authors gathered information from thousands of modern inbred maize varieties. To predict flowering in the long-dead archaeological samples, they compared the genomes of ancient and modern strains. To test whether their predictions were accurate, they developed populations from descendants of the ancient varieties and grew them to observe when they flowered. The validation showed that the initial predictions were highly accurate. Future studies of archaeobotanical crop samples could now use the same methods.

“It wasn’t thought possible to pinpoint a trait like flowering time from archaeological samples and it’s only because of recent advances in both ancient and modern genomics that we’ve been able to generate these new insights,” says Swarts.

The study was funded by the National Science Foundation in the US and the Max Planck Society in Germany. It will be published on Friday 4th August in Science.

Source:

<http://www.tuebingen.mpg.de/detail/praehistorischer-mais-betont-wert-genetisch-diverser-ressourcen/>

<http://science.sciencemag.org/cgi/doi/10.1126/science.aam9425>

Newsflash

IMAGE Dialogue Forum: Sanitary Regulations



IMAGE stands for **I**nnovative **M**anagement of **A**nimal **G**enetic Resources. In seven workpackages different aspects of genebank material for breeding and science are addressed.

In the Frame of the Horizon 2020 project IMAGE the 2. Dialogue Forum took place in August 2017 in Tallinn, Estonia with representatives from science, ministries and NGOs. Topics of this event, which was well attended by more than 40 participants, were the animal health regulations in context with the exchange of animal genetic material with gene banks. In line with the epidemic provisions of the OIE (World Organization for Animal Health), the

EU Animal Health Law (2016/429) and the EU Directive 92/65 partially restrict the exchange of animal genetic material. In particular, material imported before 1992 can no longer be made available to breeders and researchers, since it has not been in line with the stricter regulations in force since 1992. The legislation of the countries has to follow these regulations. Although it is possible to subsequently test the material for certain transmissible diseases, the PCR tests (polymerase chain reaction) are complex and expensive. Even breeding under quarantine conditions is beyond any practice, especially with traditional breeds, whose owners are mostly small-scale farmers or hobby-keepers. After input presentations discussions in groups about the possibilities, challenges and obstacles for an exchange of genetic material with regard to the provisions of the sanitary regulations took place. There was a clear consensus that the current regulations in practice mean that old material can no longer be released. This, in turn, has a fatal impact on the breeding of traditional breeds, as blood rejuvenation is made impossible by older lines and from other countries. Global trade, climate and environmental changes will inevitably lead to other infectious diseases that need to be addressed. The "new" and well-secured material of today can therefore already be uncertain "old" material tomorrow!

One of the next aims of IMAGE will be a closer contact to officials in the EU commission to discuss possibilities for any solution of this conflict. Should the adequate testings of the material be paid by the governments or other public bodies? Is there a possibility for mobile entities to collect material? We need to be aware: the material we have today will be old material tomorrow.

Call: In the frame of the H2020 project IMAGE a dialogue with the European Commission shall be conducted. Therefore SAVE collects experience reports on problems with the exchange of breeding material especially with gene banks and AI centers. Have you ever refused the use of sperm or oocytes, etc., for breeding because the material does not meet the requirements of the law? Please let us know your experiences and write to: Waltraud Kugler: office@save-foundation.net

Thank you very much for your support!

Crop Wild Relatives and Climate Change



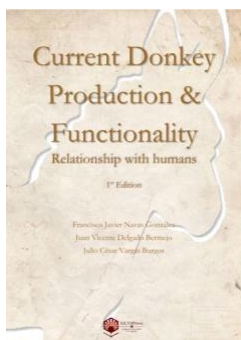
The wild relatives of our crop, the "Crop wild relatives (CWR)" are an indispensable source of useful traits for the improvement of crop plants, especially when special characteristics can no longer be found in the cultivated species. Therefore, securing CWR is a priority within conservation. However, CWR are currently underrepresented in ex situ genetic resource collections, and their in situ survival is endangered by various influences. Especially in recent decades, the survival of the CWR in its natural habitats has been questioned by the increasing awareness of climate change and its effects on flora and fauna. Recent predictions with a

species distribution model of eight Dutch Red-List-CWR revealed large decreases in Europe as a result of climate change. In the Netherlands, even two species were predicted to die out, regardless of their presence in protected areas (Aguirre-Gutierrez et al., 2017). The study showed that the development of adequate safeguards should not ignore the effects of climate change. The analysis of

the expected effects of climate change on the distribution of CWR is of fundamental importance for deciding which species must be carried out in situ conservation measures and where ex situ conservation is essential.

Source: <http://www.ecpgr.cgiar.org/working-groups/leafy-vegetables/ccleafy/>

Donkeys in the world: Comprehensive Information



Together with the research group PAI AGR-218, Genetics Department, Faculty of Veterinary Sciences, University of Córdoba, Francisco Javier Navas González realized a comprehensive book about Donkeys in the world. With more than 700 pages it contains a lot of information and views on don-

keys and their use. "Current Donkey Production & Functionality, Relationship with Humans, 1st Edition" is available here: <http://www.uco.es/ucopress/index.php/es/catalogo/e-books/product/603-ebook-1st-volume-current-donkey-production-and-functionality-relationship-with-human>

And also on the SAVE Agrobiodiversity net:: http://www.agrobiodiversity.net/topic_network/donkey/Best_Practise/Current_Donkey_Production_and_Fundctionality.pdf

Last but not least: Plagiarism in EU Glyphosate studies



In the discussion of possible health risks of the pesticide glyphosate, MEPs are calling for an investigation committee. They want to find out whether and to what extent the US agrarian company Mon-

santo has influenced scientific research. The formation of a commission is "required", said EU members Éric Andrieu from France and Marc Tarabella from Belgium. "There are too many unanswered questions".

Earlier, the parliamentarians had heard several experts on the subject, but not the Monsanto group's employees. They had refused all the summons to participate in the hearing; thereupon the parliament granted Monsanto lobbyists house ban. Source: http://www.lemonde.fr/planete/article/2017/10/04/monsanto-papers-desinformation-organisee-autour-du-glyphosate_5195771_3244.html