

The Crop-sprayed villages of Argentina

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SoyaRR and the agri-chemicals

From the start of the research into the RR technology¹, when the transfer of the gene for resistance to Monsanto's RoundUp herbicide was being planned, the rationale of companies and co-opted researchers investigating on behalf of the State or the private sector, was that genetically modified crops with this gene would lead to a reduced use of herbicides. Other scientists and people from different ecological organisations predicted the reverse: that the use of this technology would lead to an inevitable increase in pesticide use.

Reports published by the Argentine Ministry for Agriculture, Livestock, Fisheries and Food state that between 1995 and 2001 the herbicide market had grown from 42 to 111.7 million kg/l respectively, whilst the market for insecticides grew within the same period from 14.5 to 15.7 kg/l, and the fungicide market grew from 7.9 to 9.7 million kg/l.

Another study by the Agricultural faculty of the UBA (2003) states that of all the active substances used in soya phytosanitation, the most important is glyphosate (not just for soya, but for the whole global phytosanitation market). Sales of this active substance have increased, and represent over 90% of the commercial value of herbicides used on soya. The insecticides, Chlorpyrifos, Endosulphan and Cypermethrin have achieved consolidation of the market between 1999 and 2003, and this constituted 74% during the last year of this period^{II}.

The agricultural expert Delma Faccini of the National University of Rosario, explained that modifications in cultivation systems such as conservation farming (direct sowing) and the appearance of GM soya varieties are causing changes in weed populations, not just in quantity, but more importantly in the appearance of certain species which are normally uncommon within these systems^{III}.

In their conclusions relating to strategies for chemical weed control during long fallow periods for soya cultivated using direct sowing methods, the Asociación Argentina de Productores de Siembra Directa (AAPRESID, the Argentine Association of Producers using Direct Sowing Methods) stated that one of the most frequently used alternatives is the use of glyphosate

¹ Roundup Ready

with metsulphuron. The Association adds that a second option could be the use of atrazine in mixtures with glyphosate, as this may provide an excellent residual control of broad-leaved weeds and improve long-term control with metsulphuron. The main disadvantage of the last product is its high price. Soya producers stress that with this mix of glyphosate and atrazine, it is advisable to increase the dose of the former by 25% of the recommended dose, as some of the components included in the formulation of atrazine make part of the glyphosate inactive^{IV}.

As well as the appearance of different weeds, soya itself can become a problem. Publicity from Syngenta states that soya is a weed. This refers to soyaRR which remains in the soil after harvest and which germinates out of season. To deal with this rogue soya, Gramoxone (paraquat) and Gesaprim (atrazine) are proposed. Both are manufactured by Syngenta.

The arsenal of agrochemicals used on soyaRR also includes fungicides. On the 9th January 2007, Reuters announced that world agrochemical

Figure: Publicity from Syngenta on resistant weeds.

"Soya is a weed...because rogue soya, as other glyphosate-tolerant weeds, takes the humidity and nutrients from the soil and damages your next crop. For this reason, during chemical weeding, the solution is Gramoxone."

LA SOJA ES UNA MALEZA.

Porque la soja guacha, como las malezas tolerantes a glifosato toma la humedad y nutrientes de su suelo perjudicando su próximo cultivo.

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industry giants compete for a promising business with Argentina: the sale of fungicides to prevent the advance of the devastating fungus on the crops of the world's third largest soya producer. The fungus (which can reduce crops by up to 80%) appeared during the last two cycles in Argentina. It appeared in the season of 2004/05, even before sowing have been completed, and experts fear that it will spread in the months to come. The newspaper article adds that Syngenta launched two products at the end of 2004 specifically to control the disease. Bayer Crop Science also collaborated with the local branch of Nidera to manufacture and market two of its four fungicides to deal with this pathogen, which is also known as 'Asian Soybean Rust' ^V.

Another problem associated with glyphosate use is that maize cannot be cultivated next to soyaRR. On the 23rd of March 2003 the Infobae newspaper wrote that the President of the Asociacion Argentina del Maiz (Maizar, the Argentine Maize Association) had other reasons for improving conditions for the use of maizeRR: 'For example, in maize plots which are next to soya, the spray carried by the wind burns the adjacent maize, thus it is either lost in the maize, or a bad spray is carried out and hundreds of kilos of soya will be lost.' The solution advised by the President of Maizar is that maizeRR should be approved so that it can be planted alongside soyaRR^{VI}.

In spite of all the evidence seen by the expansion on an industrial scale of the RR direct sowing technology, there was an increase in general pesticide use. On the 13th July 2004, the commercial cultivation of maizeRR NK603 was approved^{VII}. Days later, the EU approved the import and processing of maizeRR^{VIII}. It is hard to believe that there had not been any previous negotiations, and that both sides of the trade in RR technology had not previously come to an agreement so that approval on both sides of the Atlantic could take place.

For years the Grupo de Reflexión Rural has condemned the advancing boundaries of soyaRR. This condemnation now extends to the maize which is resistant to the RoundUp herbicide and which is used within the framework of the agro-export model. In early 2006, the GRR decided to launch a campaign to map the villages affected by the use of agrochemicals. The objective of this was to raise awareness and provide support for neighbouring groups united in their campaigns against crop spraying, through the publicity of cases within the GRR radio programme Horizonte Sur (Radio Nacional, Argentina), and through motivating the organisation of the population to enable them to defend their health, their environment, and their community. The campaign identifies affected

communities in areas where these agricultural policies and technologies have been applied. The first stage involves taking statements from those affected and compiling data obtained from patient surveys, or water or soil analyses in order to provide evidence of the negative effects produced by the application of products such as glyphosate^x.

Described below are some prominent cases, which include some taken up by the media, such as those compiled by the GRR. Even though local media, and some national media, publish news of poisonings affecting people, animals, crops and other vegetation, there has still been no reaction from the relevant Government Departments. Many of the groups that manage the media, such as the Clarín Group, are accomplices of the businesses that, in the majority of cases, are the advertisers that bring a lot of money to the press, television and radio programmes.

The consequences of crop spraying over 16 million hectares of soyaRR. Is a silent genocide taking place?

Formosa

Formosa is a province in north-west Argentina which is considered to be one of the poorest in the country. During the last decade, the urban population grew by 39%, while the rural population decreased by 14%. In Formosa Capital 39,6% of the population cannot meet their basic needs.

Benigno López, President of the Movimiento Campesino de Formosa (MOCAFOR, the Organisation of Campesinos in Formosa) stated in a report dated 2003, that the production of small and medium-sized producers had been completely destroyed. Small producers can hardly produce enough to survive on. Surviving medium-sized producers have been co-opted into larger companies by renting them their land and working for the companies. Others have been forced to sell their land. The proportion of small-scale producers is more than 95% of agricultural producers and the land tenure of 80% of these rural inhabitants is precarious, with plots being too small to sustain a family.

López adds that in the past few years, there has been an influx of various production companies into the area (among these, Agricultores de ANTA S.A., Union Transitoria de Empresas (UTE), and Proyecto Agrícola Formosa (PAF)), which rent land to produce soyaRR and use agrochemicals without following any provincial or national government control. There are camouflaged companies producing soyaRR in which the provincial

governments of Formosa and of Salta participate, along with private companies from Buenos Aires, Santa Fe, Córdoba and Salta. López considers that, for these companies, it is profitable to produce soyaRR with the use of agrochemicals, as they are destroying land that does not belong to them. The use of agrochemicals affects soil composition by depleting soil fertility. This production system is also profitable, as it does not use manual labour, given that machines do all the work, thereby maximising profits^{XI}.

Loma Senes, a violation against food sovereignty

On the 5th May 2003 the Buenos Aires newspaper Página 12, published an interview by Laura Vales entitled 'The poison came on the wind'. This was an interview with two campesino women from MOCAFOR who described the Loma Senes disaster. Every February their plants became burned as neighbouring fields of soya crops were sprayed by the company. The wind blew to the north and spread a cloud of the liquid spray over several hectares. Eugenia Giménez and Candida Fernandez remember that the spray in the air irritated their eyes immediately, then they suffered nosebleeds. Others suffered respiratory tract problems and skin rashes. Their crops were dessicated:

'...the leaves of the peppers curled up and shrank up into little rolls. They looked like they were made of plastic. The manioc was lost, the melon looked like it had hot water poured on it, the squash was the same....'

The chickens and other small farm animals died. The farmers complained that these effects had been produced by a mixture of herbicides used on direct sowing of GM soya crops. They claimed compensation for damages and asking for environmental studies to be carried out, as they were unsure of the risks they have been exposed to through this contamination.

Members of MOCAFOR made a picket and cut the road demanding compensation and assistance of doctors and medicines to treat those affected. The interviewees said that the mistrust had started months before. On the 12th of August:

'the national Department of Agriculture organised a meeting in school number 84 because of parents' demanded that crop spraying should not take place in windy conditions because the children were becoming ill and suffering from headaches and vomiting.'

The spraying continued. After protests took place, a dermatologist examined the children and told them that their skin eruptions were caused by a 'lack of hygiene'. On another occasion, the government agreed to treat them in a health centre. They were *'all prescribed the same anti-parasitic medicine, as if they believed we were so ignorant that we would not notice.'* After the last episode, and the picketing that took place, there were protests in other parts of the province.

The producers in General Belgrano complained that they were also having problems, and on the 28th of February they prevented a crop-spraying plane from taking off. On the 3rd of March, the community from the Loma Senes settlement formed a road block, and two days later, the newspaper, La Mañana, published a complaint from farmers in El Colorado relating to the death of poultry and fish, also caused by herbicide use on GM crops. The small producers started legal proceedings for compensation and to request an enquiry to establish the degree of contamination present^{xii}.

Technical reports on contamination in Loma Senes

The Asociacion de Feriantes de Pariné (the Pariné Association of Local Producers) requested the collaboration of the Professor of Ecology from the Faculties of Natural Resources and Humanities at the University of Formosa in another study looking at the damage caused by agrochemical use on the soyaRR fields in the Loma Senes settlement. Máximo C., Gorleri, an expert from the University of Formosa carried out another study in March 2003.

After studying the report written by the expert Luis Castellan, Gorleri travelled around the affected area. He interviewed producers who had suffered from the effects of crop spraying. They told him that spraying was carried out from a type of truck known as 'mosquito' during the months of January and February in the mornings and afternoons when temperatures were high and there was a breeze. The campesinos reported that a short while after each spraying, a dense mist with a strong chemical smell would cover a large part of the community and its environment. They also said that the trucks would load up with water from small dams located between roadside pavements and the fences at the edges of properties.

Among the damage caused to livestock were the death of poultry (chickens, guinea fowl), cattle, pigs and horses. There were also reports of aborted pregnancies in cattle, pigs and goats.

The most common symptoms of the crop-spraying among the inhabitants of the community were dizziness, nausea, vomiting, diarrhoea, stomach pain, rashes, allergies, skin lesions, spots, eye irritations, and problems with sight. In some cases, diarrhoea persisted for long periods of time.

The socio-economic damage recorded within the report of March 2003 stated that the majority of people affected are poor labourers who work smallholdings for family subsistence. In some instances these families do not have access to social welfare or State healthcare. It is believed that there are a number of harmful elements and varying levels of *biocide* contamination present within the community, therefore it is necessary to take samples and send them away for analysis. Furthermore, the chemical effects on insects, beneficial arthropods, nitrogen-fixing bacteria, fish, and other aquatic organisms are unknown. The report maintains that information on wildlife is scarce and imprecise. It is known that there are bird deaths, and deaths of hares, but no mention is made as to which species are affected. The report concludes with details of legislation to protect the environment and inhabitants of the Province of Formosa^{XIII}.

Entre Rios

Doctor Darío Gianfelici lives in a town in Parana, Province of Entre Rios. He commented that, during chemical fallow periods used in the direct sowing system of soyaRR, and during the growth of the crop itself, the inhabitants of the area live under the spray of the crop spraying aircraft. The consequences on the health of his patients are serious.

Luis Alberto Banegas is a bee-keeper. He lost 50 hives because of crop spraying in a neighbouring field where soyaRR is being grown. Marta Cian, who lives in the neighbouring village of Libaros, has respiratory problems and had to wait for two years for doctors to identify that the cause of her bronchial-respiratory problems stemmed from the handling of agrochemicals behind her home, and the spraying of fields next to her village.

Ricardo Mascheroni² stated in a recent article that a doctor friend of his from the Province of Santa Fe, which is a soya producing area neighbouring Entre Rios, told him that many of his colleagues had noticed the appearance or increased incidence of pathologies and problems which

² Lecturer and researcher at the Faculty of Legal and Social Sciences, Universidad Nacional del Litoral (National Coastal University).

are normally rare, sporadic, or at least uncommon, such as leukaemia, deformities, and miscarriages. The doctor did not know what to attribute these to, and adds:

'Although we have our suspicions, it would be irresponsible to risk a relation of cause and effect. We can confirm that percentages are increasing and newspaper articles seem to confirm these trends'^{xvi}.

A rise in epidemiological disease reported in the province of Entre Rios (2000 – 2005)

Disease	2000	2001	2002	2003	2004	2005
Diarrhoea	15.472	11.560	24.411	27.327	30.368	37.652
Pneumonia	1.826	1.397	2.964	3.694	4.855	6.396
Influenza	21.434	13.437	26.160	35.716	45.539	55.637

Source: Department of Health in Entre Rios – Office of Epidemiology. Department for the Surveillance of Epistemiology and Epidemiology, and the Laboratory Division.

On the 1st of June 2007, the press agency MERCOSUR reported that cattle that had died in San Ramon, Department of Federación, Entre Rios, after having eaten pasture poisoned with endosulphan following crop spraying of soyaRR by a company from Concepción del Uruguay: '...in July 2003, the researcher María Isabel Carcamo reported that 60.000 inhabitants of central Entre Rios, particularly around Villaguay, were suffering from the effects of endosulphan applications to GM soya crops. She explained that the main symptoms of the toxic agrochemicals range from a diarrhoea that is almost impossible to stop, dizziness, a tingling sensation in the body, headaches, nausea, and breathing difficulties which resemble asthma attacks...'

There were also reports of children with skin damage that looked like a fungus and which started after they had been bathing in ponds and streams near an estate which had been crop sprayed with endosulphan from a plane. Endosulphan is used by the large GM soya producers to combat the Green shield bug and lizards, but it also affects many other species of insects, cold-blooded and warm-blooded animals, and of course, bees. Around this time, there were also a number of cases of congenital deformities in newborn babies that was well above the average^{xv}.

Impacts on biodiversity

In 2003 ECOSOL, a local NGO, reported the presence of dead fish in many streams and ponds. It also reported hares and other wild animals lying dead in the countryside.

Those same people that celebrate the economic success brought about by soyaRR, such as the hotel owner or the agricultural engineer working with the sowing pools, will have noticed that there are no longer as many fish in the region as there were before, nor as many wild animals to hunt. They loosely relate this fact to intensive agriculture. The Instituto Nacional de Tecnología Agropecuaria (INTA, the National Institute of Agricultural Technology) in Gualeguaychu published a report in May 2007 which states that 'the increasing and uncontrolled' use of agrochemicals in the Province is an important cause of fish mortality^{XVI}.

The crop spraying is responsible for the disappearance of the owl, a natural predator of rats. The journalist Estela Gigena wrote: 'In these unequalled times of plenty for the soya producers...it is deeply worrying to see the price that society has to pay for this, when the consequences could be the extinction of the owls, and the consecutive proliferation of rats in the countryside with an increase in carriers of leptospirosis, causing animal infections, and to date, the death of two people in Gualeguaychu alone.

The advance of the agricultural boundaries, as in other parts of the country, has affected the native scrublands and pastures. A notice in the daily newspaper, *La Nación*, on the 1st of October 2003 made it known that the cutting down of forest was forbidden in the Province of Entre Rios. A national environmental emergency was declared after a report on deforestation by the National University of Entre Rios reported that the unrestricted deforestation of previous years had caused almost 1.2 million hectares of forest to be cut down, and that there only remains between 800,000 and 1 million hectares of what could be considered as virgin forest. In total, there are about 4 million hectares of forest and pastures at risk, threatening the extinction of animal and plant species. Deforestation is also attributed to the giant advances being taken by soya within this coastal province.

Threatened by this, the Entre Rios Government decreed a moratorium on deforestation of natural scrubland and riparian jungles, whether on public or private lands, across the whole province for six months. The decree threatened severe consequences for offenders, including expropriation of lands and machinery used for deforestation.

There have been expressions of concern regarding indiscriminate deforestation as well as contamination with agrochemicals and their harmful effects. According to the Province's Minister for Production, the devastating advance of soya reached 600.00 hectares in 1994, and 1.200.000 hectares in 2003. The practice of deforestation consists of pulling out trees that are hundreds of years old, piling them up and burning them to make room for agriculture. The Agricultural Minister for Entre Rios stated that:

'Thirty percent of this agriculture is carried out by foreign sowing pools. When the soil is worn out because of the methods used by the companies who are only looking for quick profits, they will move to another area and Entre Rios will be left like a desert'^{xviii}.

Several years after this statement and the six-month moratorium, the cutting down of native forests in Entre Rios continues, and nothing is being done to stop it. In October 2006, SOS, an ecological NGO from Villaguay reported the systematic deforestation of over 400 hectares in Estación Raices, and the violation of the legislation protecting native forests and regulating forest clearances. They also warned that the forest clearances are being carried out systematically in all the districts of the Department.

'Deforestation is followed by the complaint. The inspectors arrive too late and impose derisory fines from 12 thousand to 15 thousand pesos (around 4.000 U\$), and the punishment for the crime is then complete'.

The ecologists talk of 'derisory' amounts, considering the price for a hectare is around 2.500 dollars, and that an hour's hire of a bulldozer is 160 pesos (50 U\$).

Permits for deforestation in the Province are for a maximum of 100 hectares, and need a management plan signed by a qualified engineer. But in the Department of Villaguay, over 800.000 hectares have been deforested in the last few years. *'When they receive their permit for the 100 hectares, businesses are informed of the fines they will need to pay on the rest... The degree of aggression exerted on the environment in Villaguay has no precedent'*, the ecologists commented. They assured us that in the Department they are 'used to deforestation, illegal taking of lands, the burning of orchards and crops through inappropriate use of agrochemicals, the death of domestic animals, the washing out of crop-spraying equipment in streams, and the application of agrochemicals which have been banned for over ten years'^{xix}.

In April 2007, in spite of all the available public information, there are still reports in Entre Rios of deforestation and crop-spraying which affect the native forests of the Province:

'The inhabitants of the Federal settlement stated their concerns about expansion of soya monocultures in the area, and the accompanying indiscriminate deforestation and aerial crop-spraying. This implies a threat to the environment and to the health of the population. The problem arises in the area around El Gato and Loma Limpia, that is, the heart of the Montiel Forest...'^{xx}

Santa Fe

Santa Fe, along with Buenos Aires and Córdoba, is one of the provinces that adopted the soya model right from the start. The consequences of crop spraying are extremely serious, although like the others, this province takes little notice of the constant reports and complaints. The Santa Fe newspaper, 'El Litoral', published a notice on the 26th of October 2006 stating that representatives from the Centro de Protección de la Naturaleza (CeproNat, the Centre for the Protection of Nature) requested that the ombudsman should intervene in the enforcement agrochemical use in crop spraying. Another notice directed directly to the Provincial Ombudsman, Carlos Bermudez, exposed that 'what has been happening it is common knowledge. The increase of areas destined for agricultural activities means that crops are planted right up to the very edges of towns and villages in many parts of our province and in the region.'

The newspaper also reports that the organisation asked the Ombudsman to intervene and for this purpose registered the relevance of Legislation number 11.273 which establishes prohibition of use and application of these products (Articles 33 and 34 of the Law, and Articles 40 and 51 of the Statute 552/97), and regulations which enforce the delimitation of planting in urban areas belonging to Town and District Councils.

They specifically asked the Ombudsman to put mechanisms into place to ensure strict compliance with legislation to 'protect the rights and interests of individuals and communities'. Reports of violations of the law are commonplace in Santa Fe; On the 17th of February 2004, the agency Newspapers and News of Argentina reported that thousands of fish were dead along a six-kilometre stretch of the shores of Lake Quirno in the Santa Fe town of Villa Cañas, situated 180 kilometres south of Rosario. The provincial police carried out an investigation to establish

if this disaster could have been caused by agrochemicals sprayed from an aeroplane. Another hypothesis attributed the fish mortality to a possible warming of the lake waters. The police inspector, Juan Manuel Ricardo, told the Rosario newspaper, La Capital, that: *'in accordance with preliminary investigations, this could have been caused by a crop-spraying plane emptying its tanks into the lake. Nevertheless, we will send a water sample to the Regional Unit II in Rosario so that it can be analysed. We have also asked the local flying club to provide us with information about the movements of planes and if there were any flights registered during the days in question'*^{xxii}.

In January 2006, the Santa Fe newspaper, Rosario 12, published an article entitled 'Deformities in the countryside' which describes the results of a scientific investigation carried out over five years to study a total of six villages. Five of these are located in the Province of Santa Fe and one is located in the north of the Province of Buenos Aires. The article states that the study is financed by the National Department for Health, and that it found direct links between incidence of cancer and infant deformities with exposure to environmental contamination. The multi-disciplinary team studied six villages in the humid pampa of southern Santa Fe – Alcorta, Bigand, Carreras, Máximo Paz, and Santa Teresa. They found causal relationships between cancer and urogenital deformities in male inhabitants that had been exposed to environmental contamination. Within the villages of the study it was determined that testicular and gastric cancer in males was three times higher than the national average. Liver cancer was almost ten times higher, and lung and pancreatic cancers were twice as high as expected. Males appear to be more affected by this disease. It was found that there was 'a significant incidence of deformities when compared to the national average'. The most prevalent included: hypospadias (an abnormal development of the urethral opening on the underside of the penis) and cryptorchidism (undescended testicles)^{xxiii}.

The article in Rosario 12 continues with a comment from Doctor Alejandro Olivera, from the Italian University Institute in Rosario. He is the Director of this project and concluded the first phase by stating: 'We can confirm that the appearance of certain pathologies in these rural environments exceed national averages, in some cases by a large proportion. The research investigated family composition, data on the most common illnesses suffered by family groups, deformities, cancer and sterility. In the case of agricultural producers, they were asked about the area of land they farmed, what proportion of produce was treated with insecticides or herbicides, and what these consisted of'^{xxiv}.

Gelin, an agricultural expert who is also President of the Agricultural College, highlighted the heavy use of organochlorine insecticides since the so-called 'green revolution'. For years, crops were sprayed with DDT, heptachlor, lindane and Hexachlorocyclohexane (HCH) until they were banned. 'From 1960 to 1978 organochlorides and organophosphates, like Parathion, were widely used. From 1978 to 1994 the trend was for the introduction of monocrotophos, endosulphan, and pyrethroids; and from 1994 to the present day applications consist of pyrethroids, endosulphan, chlorpyrifos, and other fungicides, and we should not forget the appearance and increasing use of glyphosate.'

Susana Olega from the Mujeres Federadas Agrarias (the Federation of Women in Agriculture) adds within the article that what has been found in the study provides a valuable warning that there is a link between people's health and environmental factors within our villages. And this may just possibly have something to do with the growth in new technologies and agrochemicals required for the cultivation of the GM crops that have come to dominate our agriculture during the past two decades^{xxv}.

In another article in the same newspaper, Doctor Alejandro Olivera explains that, according to figures from the United Nations organisation for Agriculture and Food (FAO), Argentina's use of agrochemicals has increased by over 200%, mainly in the humid pampa regions, owing to the herbicides used for the cultivation of GM soya. In the USA and Europe this increase in agrochemical use has not reached 60 or 70%. The Doctor concludes that *'Argentina is a major consumer of all sorts of agrochemicals and we need to study them all, but no funds are available for this'*^{xxvi}.

Research carried out by the Grupo de Reflexión Rural and CeProNat of Santa Fe, interviewed inhabitants from 11 rural villages in the Province of Santa Fe. Results indicated that soya is grown right up to built edges in all the villages. In six villages it is also grown on communal lands. In 11 of the villages surveyed, crop spraying is carried out from a 'mosquito' truck using crop spraying equipment known as 'arañas' (spiders) and these are driven inside the villages. In seven villages the crop-spraying equipment is stored in the village. None of the villages take any safety measures when cleaning the equipment. In nine villages the agrochemical depots are located inside the village for reasons of security. In eight of the villages surveyed there are silos either inside or on the edge of the village itself.

San Justo

In 2005 the NGO Muyuqui was set up in San Justo³ to defend the environment. They began work on two main campaigns: 1) the strict adherence to Legislation number 11.723 relating to phytosanitary products, and 2) against contamination from Cerosotes. The NGO has a 15-minute radio programme on FM100 from which they publicise their campaigns. In February 2006 they obtained an Order of Agreement under Legislation 11.723 from the Executive of the Municipal Council to set new village boundaries for the application of agrochemicals. It was also agreed that Municipal inspectors would take charge of any reports of misconduct, particularly from crop-spraying aircraft and terrestrial crop-spraying machinery entering the village. Objections to this action manifested as threats against one of the NGO members and his family. The Municipal Council requested that there should be a truce until the 31st of May when the soya crop would be harvested. Muyuqui agreed to this on the condition that if it became necessary to spray the crops within the exclusion zone, this should be authorised by a skilled professional and endorsed by a health professional.

Poster of the campaign:

STOP SPRAYING CROPS

Do soya crops grow close to your neighbourhood or street?

Does the mosquito or the crop spraying plane come near to your house?

Do they keep the machinery and poisons in your village?

Do you suffer from health problems caused by the dust of the silos and trucks?

The agrochemicals used by soyaRR and other monocultures can cause respiratory problems, allergies, cancer, leukaemia, miscarriage, congenital deformities and many other illnesses.

Indiscriminate crop spraying is illegal.

You and your family have the right to live in a healthy environment.

Coordinate with your neighbours, report cases of illness and complain to the authorities.

Campaign to raise awareness of the impacts of agrochemicals.

GRR, Madres de Ituzaingo de la Ciudad de Córdoba and CEPRONAT.

³ San Justo is situated 99 kilometres from the town of Santa Fe and has a population of 27.000.

PAREN DE FUMIGAR

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y CEPRONAT- Centro de Protección a la Naturaleza de Santa Fe.**

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Santa Fe: cpronat02@yahoo.com.ar

Más información en: WWW.GRR.ORG.AR

Las Petacas

Within the urban centre of this small community⁴ there are five cereal silos. For most of the year the winds predominate from the north and the cereal dust intermingles with the town's inhabitants. No attention is given to crop spraying limits, and this takes place in fields right next to the village and the crop spraying trucks and vans that carry the agrochemicals drive around the village streets. Thirty percent of the population drink rainwater, and the aircraft with broken and leaking pipes contaminate the air and the roofs of the houses. Miguel Battistelli, the Mayor of the village, sold lands belonging to the local estate to four powerful producers who then built large barns in which to store the farm machinery (tractors and seeding machines), crop spraying machinery and agrochemical containers. These lands had been reserved for the expansion of the village.

An epidemiological study was carried out on morbidity and mortality. This showed that during the past 10 years, the village inhabitants have had 42 cases of cancer and 400 people have suffered from a variety of allergies. In October 2005, five people died of cancer and two died from leukaemia. Furthermore, the water consumed by the poorest 20% of the population is unfit for human consumption. The study found water contaminated with arsenic, nitrates and nitrites, and during an excavation, water containing phosphorates was also found (agrochemicals are made of phosphorates).

The residents of Las Petacas began to organise themselves and work together in 2004, as they were concerned about the number of people who were becoming ill. They protested at District and Provincial Government level but received no response from either, until the biologist Raul Montenegro began to support them. He helped then to launch a campaign against the agrochemicals. Employees of Sanidad Vegetal (Plant Health) came to the area. They issued formal written statements and three warnings to the soy producers, but according to a villager 'everything was covered up by money'. Currently, the residents of Las Petacas are collaborating with nearby villages experiencing the same problems of contamination and illness.

⁴ Las Petacas is situated 200 kilometres south-west of Rosario and 10 kilometres from the Province of Cordoba. It has a population of 1.178, of which 80% earn their living from agricultural production.

Piamonte

This village is surrounded by soya crops, and when they are sprayed 'the agrochemicals are scattered over the homes, which are located right next to the crops' says Carmen Baudino, an inhabitant of the village. They have also built 20 barns within the village, covering an area of 1.500 metres. These are used to store machinery and agrochemicals. That is where the agrochemicals are divided up and sold, and where the crop-sprayers are loaded up. Another problem in the village is the traffic of trucks transporting soya and of machinery used for spraying. There have been instances of open pipes on applicators leaking liquid as they pass through the town.

There have been no studies carried out, nor any other type of analysis on illnesses that may be related to crop spraying. The residents have complained to the local authorities about these problems, but they are still waiting for a reply and for adequate measures to be taken to put a stop to this increasingly serious situation.

Alcorta

This village⁵ does not have any important manufacturing initiatives (it hardly manages to keep a few minor industries going) and its economic pace follows its agricultural activities, which are predominantly based around soya production. There are still a few traditional producers (agriculture, cattle and pigs). The other source of employment in the area is the local government. Agricultural activity is dependent on the development of trade, the increase in construction, the property market, etc.

During the past few years there has been disquiet from certain sectors about methods of production and their relation to the health of the residents. Running alongside the railway track is a storage plant made up of silos belonging to an agricultural cooperative. During loading and unloading of grain, the dust makes the air unbreathable within an area covering various blocks around the grain stores. Ten villagers from Alcorta have complained that RoundUp is being sprayed across whole neighbourhoods and that the herbicide is also being used to kill weeds on pavements in the village centre. At the same time, inhabitants of outlying neighbourhoods have complained that aerial spraying is being carried out

⁵ Alcorta is located to the south of the Province of Santa Fe, 100 kilometres from the town of Rosario. It forms part of the Department of Constitución and has a population of 8.000.

on crops bordering urban areas. These activities are banned by Provincial Legislation and by Decrees.

The Rural Workers Union has detected an increase in the incidence of cancer, but they do not have the data as statistics. Alcorta is one of the towns of the study published in 2006 and conducted jointly by the Centro de Investigaciones en Biodiversidad y Ambiente (ECOSUR, the Centre for Biodiversity and Environmental Research) of the Italian Garibaldi Hospital in Rosario, the UNR, INTA, the Agricultural College, and the Argentine Agricultural Federation, and financed by the Department of Health.

In November 2005, a preliminary study carried out by professionals from the Faculties of Veterinary Science, Agriculture, Medicine, Political Sciences and Economy at the National University of Rosario, assembled in the Observatorio del Sur proposed that, in spite of the increased use of chemicals in the countryside, there are no systematic studies of the consequences of this on the health of rural workers. Within the region, 70% of consultations at specialist health centres relating to poisonings are carried out by phone. There is a lack of accurate epidemiological data and there are no studies of the population in situ.

As a consequence of these specific illnesses among the inhabitants of Alcorta, an attempt was made to form a neighbourhood group to 'defend the environment'. This brought about a series of analyses of PCB manufacturers⁶ and of the 'water supply network' provided by the local cooperative. But the initiative suffered from a lack of social vision and was disbanded a few months after it was created.

Máximo Paz

In Máximo Paz⁷, during the past 3 or 4 years the number of people dying from cancer has grown. The cases are located specifically within the radius of two blocks in the village where there have been 7 cases in quick succession within the past 3 years. An increase can be observed within the same area in the last 5 years. These two blocks of dwellings are located a few metres from a cereal plant. In 2004 the Agricultural Cooperative in this area (a body that forms part of a national organisation with a great deal of economic power) built new silos a few metres from

⁶ Polychlorinated biphenyl (PCB) is considered by the UN Environment Programme (UNEP) to be of the 12 deadliest contaminants manufactured by man. Its use is currently banned throughout most of the world.

⁷ This village is located 55 kilometres from Rosario and has a population of approximately 3,500.

the old ones. The company does not want to move from this location and put pressure on the residents of Máximo Paz in order to create conflict, threatening that if they leave the villagers will lose a source of employment. Agrochemicals are also a problem, as they are stored, sold and used inside the village itself. According to Señora Russo *'they clean the plastic containers right in front of our noses and nobody says or does anything...'* Another problem that worries neighbourhood groups is that of water. It contains levels of arsenic which are at the limit of the national permissible levels, and sometimes this is exceeded. When this takes place, another cooperative that is responsible for water – the Cooperative for Works and Development, denies there is any water contamination, and offers reverse osmosis as a short-term solution.

In order to resolve both problems, a number of villagers have grouped together and organised meetings, some of which have been very well attended, to inform the population on these issues. The President of the district has taken part in some of these meetings and has pledged to find solutions to these problems. Nonetheless, the authorities have not yet taken any measures to improve the situation.

San Lorenzo

San Lorenzo⁸ is the location of cereal stores on the banks of the Parana (an appropriate place due to the river depth). These stores are causing contamination and a rise in illnesses within the population due to spraying of soya crops on the edges of the town, the constant transport of trucks through the town, and the commencement of work on a new dock for barges and fertilisers only metres away from the residential neighbourhood of Combate in San Lorenzo. There was a project in San Lorenzo to protect the cliffs, but the Governor of the Province announced that only 300 metres would be protected and the remainder would be given over for the construction of the planned dock and for other docks in the future.

Even though inhabitants of the town speak of the existence of oncological cases, diabetis, lupus, and infants born with deformities, there have not been any official studies carried out. Neither has there been any investigation of the soil or water supply.

⁸ This town is located in the south-east of the Santa Fe Province on the right bank of the Parana river. It is 320 kilometres from the city of Buenos Aires, 24 kilometres from the city of Rosario and 150 kilometres from Santa Fe.

During a protest against crop spraying, the residents of San Lorenzo were suppressed by a gang led by the Mayor, Mónica de la Quintana, with the support of the Association of Argentine Cooperatives, the provincial Police and the local court. The protestors are due to attend a court hearing for having taken part in the protests. The neighbourhood group expressed that 'government officials collaborate with and rely on the needs and decisions made by the companies which include ACA, Molinos Vicentín, Cargill and Bunge'^{xxviii}.

Prostitution in San Lorenzo

The port complex of San Lorenzo is a terminal on the Waterway and the most important export centre in the country. Large oil milling plants are being set up for oil and biodiesel from Argentina^{xxix}. The local residents of San Lorenzo are finding themselves seriously affected by the impacts to health and the negative social activities of soya workers in the port. A local leader describes the situation:

'owing to the constant movement of ships, a booming business has developed in satisfying the sexual needs of the crews. This is the fastest growing business in the area. They mainly bring in young women from Santa Fe and the villages of Rosario, and the great majority of them are under 18 years of age...'

'They transport the women in launches owned by the brothel owners. All the while, the politicians and police stay quiet...'

The local leader also explained how the tankers often need to have their holds fumigated. These have capacities of thousands of tonnes and require large quantities of toxic chemicals. This practice has already caused the death of tens of sailors through inappropriate use of these products^{xxx}.

Córdoba

The Ituzaingo Annexe Neighbourhood

The Ituzaingo neighbourhood⁹ is located in the province of Córdoba has suffered for years from the spraying of soyaRR crops in neighbouring fields. The neighbourhood was built on an industrial waste site and contaminated water was provided to the residents for over 20 years. There is evidence of the presence of PCBs and the plaguicides used in the

⁹ A neighbourhood located on the outskirts of Córdoba Capital. It has a population of 5.000 with low socio-economic status and a high index of infants within the population.

constant and uncontrolled spraying of soya that takes place in neighbouring fields. Soil tests indicate the presence of Malathion, Clopyrifos, Alpha-Endosulphan, Cis-Chloedane – an isomer of DDT, Beta-Endosulphan, and hexachlorobenzene. Furthermore, studies of domestic water tanks have revealed agrochemicals (Endosulphan and Heptachlor) and heavy metals (lead, chromium, arsenic).

At the end of 2001 a group of mothers began to carry out a house-to-house survey of people's illnesses. They took their findings to the Departments of Human Rights and Environment and to the National Ministry of Health. As a result of these complaints and of the awareness-raising carried out by the Mothers of Ituzaingo, residents began to organise pickets and demand studies of sediments in water tanks, soil, manufacturing plants, air and magnetic fields. These were carried out by the Government, as the population of Ituzaingo did not have the resources for this.

Of the 5.000 inhabitants, 200 have recently been diagnosed with frequent illnesses such as Lupus, Purpura, haemolytic anemia, rheumatoid arthritis, respiratory allergies, skin allergies, neurological and endocrine problems, cases of deformities such as Fryn syndrome, spina bifida, deformed kidneys in the foetuses of pregnant women and osteogenesis. These all occur at a much higher incidence than expected.

In March 2006 a study was carried out by the Environment Director of the local Town Council. A total of 30 children were examined. Of these, 23 have alpha-hexachlorocyclohexane in their blood – a persistent pesticide that is banned. The person in charge of the study, Edgardo Schinder, an epidemiologist and ex-President of the Argentine Society for Environmental Medicine, warned that the problem of environmental contamination persists and suggested the relocation of the neighbourhood as a solution.

As a result, the Provincial Government decided to eliminate PCBs throughout the Province of Córdoba by means of a municipal by-law prohibiting aerial spraying in the Capital of Córdoba. This was never enforced. There was also a law on agrochemicals which has not been established or published within the official bulletin. A State of Emergency was declared within the neighbourhood and a minimum area of 2,500 metres as a spray-free zone was set. This measure has not been implemented by the producers who do not even respect the 500 metre zone established within the Provincial legislation^{xxxI}.

More cases in Córdoba

Edgardo Bosio lives in a small rural property in the District of La Quinta, Department of Rio Primero in the Province of Córdoba. He recounts his story below:

‘ Three weeks ago I had a problem with the contractors who rent my field to grow soya, as they damaged an orchard with Glyphosate (through complete negligence on their part). Because of this I have discovered that it is not easy to take action against those responsible for the damage. There are many processes that I don’t know about and many untrustworthy people, and you have to struggle through everything on your own. The problem is that if it’s so hard to deal with this from within my property, what do I have to do to stop the spraying coming from outside? Because a year ago, they damaged the same orchard and I lost a few trees and a crop of tomatoes that I was growing for my own use. This damage was caused by 2,4D and the spraying was done by land-based machinery two kilometres away. As well as damaging the plants, this affects our health – mine, and my ageing parents – through the symptoms it provokes. We are unaware of the effects of this arsenal of agrochemicals, including atrazine, Misil, metsulphuron, etc.’

Edgardo adds that his activity as a promoter of awareness in his area is causing him some problems.

On the 27th of December 2002, the Córdoba newspaper ‘La Voz del Interior’ reported that two crop spraying incidents had killed two women who had been admitted to hospital in the Coroya neighbourhood when a soya field had been treated with Glyphosate from a ‘mosquito’ truck. According to the article this negates the argument that this product has no negative effects on human health. The Municipal dietitian, Fernando Manera, who is also the area agent for the Secretariat, wrote a letter to Carlos Micoli, the owner of a soya plantation situated between streets number 45, 48, 17 and 18. The letter asked the soya producer to take all the necessary precautions, because there is a nursery school in the area attended by an average of 50 children.

Monte Cristo

This Córdoba village¹⁰, as with other Córdoba villages surrounded by soya, it also suffers the consequences of indiscriminate crop spraying

¹⁰ A village on the outskirts of the city of Córdoba with a population of 5.286.

B^oITUZAINGO ANEXO

Córdoba ARG.

- ▲ LEUCEMIA
- CÁNCER
- GAFALITIDO
- PULMONA
- LUPUS
- TUMORES
- ANEMIA HEMOLÍTICA
- HEPATITIS AUTOINMUNE
- LIOTRANSDISMO
- UPAS 28
- T TRANSFORMADORES

CAMPO DE SOJA

KAMERLING

CAMPO DE SOJA

SCHORODING

CAMPO DE SOJA



with agrochemicals, dangerous residues which the grain dryers discharge into the air, the movement of 'mosquito' trucks through the village, and the presence of silos which contaminate the area with toxic gases and particles.

During 2003 and 2004 alone, 37 oncological cases were recorded (4 of which were leukaemia), 29 congenital deformities, 6 cases of asthma, 5 cases of Lupus, and 4 cases of Purpura. There were also a high number of allergies registered.

Because of this, a group of villagers presented eight notices to the Municipal Council and to the Province denouncing the indiscriminate spraying of agrochemicals, the movement of the 'mosquito' machines (which had been banned by law) by those responsible for the management of the silos and their lack of compliance with by-law 621 for the control of agrochemicals, or the Provincial Legislation for Agrochemicals. The villagers received no response. At the start of 2005 they presented their complaint to the headquarters of the Foundation for the Protection of the Environment^{xxxii}.

Mendiolaza

Mendiolaza¹¹ has a population who endure the application of agrochemicals within their village. The villagers began to organise themselves in 2004, and by October 2005 had achieved the enactment of a by-law prohibiting the use of all agrochemical and biological products that were not compatible with organic production within the village. The villagers hope that other Town Councils can use the experience that they have gained as a point of reference in their campaigns to put an end to crop spraying in populated areas. At present there is a court case in progress against the owners of fields bordering the village who continue to sow and spray secretly. Nonetheless they are finding themselves restricted by their neighbours' reports on their activities^{xxxiii}.

San Francisco

In this town¹², the history of crop spraying in fields close to homes is faithfully repeated, as it is in the other villages and towns surveyed. The discarded agrochemical containers left on footpaths and in water channels

¹¹ A village 22 kilometres from the city of Córdoba with a population of 2.390.

¹² San Francisco is located 220 kilometres from the Córdoba capital and has a population of 60.000.

place the environment and human health at risk of contamination. There have been cases of fish mortality, dead wildlife and animals that were grazing in the fields that can be attributed to these residues.

A residents' organisation was created in November 2005 to develop awareness of the problems caused by agrochemicals, the effect they have on the population, and to demand that the authorities provide the necessary measures to guarantee public health and environmental protection. The Town Council supported the Provincial Legislation on Agrochemicals whose Articles establish permitted limits, types of products, methods for use, and controls applied to crop sprayers. Nonetheless, the residents do not believe that their health is guaranteed by Legislation number 9.164 regulating the application of agrochemicals, and by-law number 5.445 which the Council endorsed. In accordance with these laws, it is possible to spray in areas next to urban plants with products of a toxic level III and IV. Among the products sold in Argentina as toxicity IV (low) are nonil phenol, nonil phenol ethoxilate, and glyphosate.

At the end of March the local Mayor proposed a by-law establishing an agrochemical-free zone of 500 metres around the town. The residents organised a campaign in support of this project and its improvement, as they wanted an exclusion zone of 1.500 to 2.500 metres. They also succeeded in having a badge with the registration number attached to each crop spraying vehicle so that they could easily identify those carrying out illegal spraying. There was also more control of workers' clothing, safety measures in case of accidents, where the vehicles are cleaned and stored, and matters relating to the good working order of pumps, shakers, tanks, valves and application spouts. The equipment was given a lifespan of two years.

In May 2006, the residents requested the inclusion of health monitoring into the Legislation, such as that used to follow up cases in the neighbourhood of Ituzaingu, an annexe of the city of Córdoba. The Mayor also requested that the Department of Health and Environment produce a report to determine the potential consequences of the use of these products on health and the environment^{xxxiv}.

Conclusion

Marta Cian, a resident of the crop-sprayed village of Libaros stated: *'We know of many people who are having problems with the crop spraying, but lately people are beginning to talk about it. Although they fear the threats and the aggravation'.*

She has been threatened since the end of the Montiel episode. Marta tells of a doctor, Inés Piñeiro, a doctor who came to do her internship at the hospital of Santa Anita. As soon as she arrived, she began to see people suffering from respiratory and dermatological symptoms that resembled leprosy. This doctor also spoke to the media.

'They did all they could to find a way to get rid of the doctor. They terminated the lease on a house she rented and they ensured her life was full of complications so that she would leave...'

The interview continued:

'Doctor Piñeiro told us in a meeting: be careful with leukemias in children. And this is happening now. There are cases beginning to appear in Santa Anita. Be careful with heart problems. Now everyone is suffering from heart attacks.'

When one travels through crop-sprayed villages throughout the soya provinces of Argentina, Marta Cian's story is repeated almost word for word by people who have never met. What they have in common is that they are all suffering the consequences of the same agricultural system for the production of raw materials, basically soyaRR and maizeRR, for livestock fodder. Today, the production of these crops continues to increase hectare by hectare, and there are economic incentives to add the agrofuels 'for export' business to the sale of forrage commodities.

Today, the agro-export model which Martínez de Hoz tried so hard to impose when he was at the height of his power is at its peak. We need to be concerned about the logic of the arguments put forward by those who champion the agro-export model of forrage and agrofuels, given that it is they who control the 'progress'. One of the champions of this model is Héctor Huergo, the editor of the rural supplement of the daily newspaper, El Clarín. When he referred to biofuels in an editorial, he condemned the country by stating: *'soya is the undeniable destiny of the Argentine agriculture, if it wants to stay at the cutting edge and compete efficiently with the rest of the world's primary production markets.'* *'We have to cut forests wherever possible and plant soya. We need to be more efficient with livestock and change from a transhumance system of livestock farming to intensive and more efficient systems. We should make as much use of space as possible to capture the sun's rays and transform them into energy, such as biofuels.'*

According to this specialist, as far as Northern Argentina is concerned, biofuels are the main focus when looking at alternative energy and potential for industrialisation of raw materials extracted from the soil, and *'our country should prepare itself for this. I personally believe we are in a position to do so.'*

Héctor Huergo and his contemporaries defend this model with vigour. They are the voice that is heard within the lobbies of FAO, UNEP¹³, the European Union (EU), etc.

Marta Cian and others like her are the captive victims of this system. They suffer insults and threats for speaking out about the situation they have to endure every day of their lives. Their experiences are being broadcast by some local media sources. Marta told us that people are now beginning to talk, but there is still fear of threats and harrassment. This situation is not unique to Libaros. It is mirrored throughout the country. Threats are administered through a repressive system which, although virtually invisible, is evident everywhere. It has had the desired effect. It has created an auto-censuring mechanism with which to silence rural inhabitants and scientists who can see what is happening but are afraid to be tarnished as 'mad' or become marginalised within their social and/or professional environment.

Article 25 of the United Nations Universal Declaration of Human Rights dated 10th of December 1948, states:

'Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.'

The situation described in this chapter is repeated in many parts of Argentina. The expansion of soyaRR has brought with it the violation of basic human rights. It began with the production of livestock forage for China and Europe. Today, there is additional demand for this crop for the production of biodiesel to supply the needs of wealthy countries so they can continue with their policies to increase their energy use. The car manufacturing and petrol industries have become allies of the agro-fuel industry and have found a new niche market. Their only concern is to

¹³ United Nations Environment Programme.

find new arguments for marketing the product in order to increase their profits as quickly as possible, whatever the cost.

This chapter has focused on what the expansion of soyaRR means to our country, and has stressed the devastating consequences of crop spraying in the regions of Argentina, where people are living cheek by jowl with soya plantations.

The truly anti-democratic nature of the process is evident by looking at who decides what will be planted on our soils – namely the strategists of the global market. We can still take steps to reclaim our sovereignty. The answers to our needs cannot be found in the unrealistic proposals for “sustainable biofuels”. We need to return to growing our own varied and healthy food crops on our own soils for our own people, and abandon the production of forage commodities. We need to oppose the production of agrofuels destined to feed the cars of the wealthy societies of this planet.

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