



Occupational Health on Nicaraguan Farms

Asociación Nicaragüense de Formuladores y Distribuidores de Agroquímicos (ANIFODA)

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About BSR

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About UniRSE

The Fundación Unión Nicaragüense para la Responsabilidad Social Empresarial (UniRSE) is a business agency, working in Nicaragua in the field of CSR since 2002. UniRSE cooperates on this issue with other agencies at the national level. At the international level UniRSE is a local chapter of the World Business Council for Sustainable Development (WBCSD), headquartered in Geneva, Switzerland, board member of FORUM EMPRESA, the CSR umbrella body in the Americas, and a member of the Central American CSR Network. For further information visit www.unirse.org

Executive Summary

For decades, Nicaraguan farmers have used fertilizers and pesticides to protect crops and increase yields. Approximately US\$450 million of Nicaragua's agricultural products are destined for the international market each year and US\$2.5 billion are consumed in the local market where standards and requirements are not as stringent.¹ Nicaragua consumed nearly 56 thousand metric tons of fertilizer in 2002, and thousands of agrochemical containers were buried, burned, or unsafely reused.² Acute pesticide poisoning among farm workers takes place mainly because of inadequate application of and unsafe exposure to pesticides while working.³

In reaction to widespread negative campaigns against the use of pesticides and other crop protection products, agrochemical importers and distributors in Nicaragua decided to counteract public campaigns and implement the Campo Limpio program through the Asociación Nicaragüense de Formuladores y Distribuidores de Agroquímicos (ANIFODA). The program focuses on easy steps for cleaning and recycling used agrochemical containers.

UniRSE, a Nicaraguan corporate social responsibility (CSR) NGO, partnered with BSR and ANIFODA to document the barriers to the wider use of ANIFODA's members' agrochemical container collection centers. As a result, BSR and UniRSE have developed a series of recommendations to improve the association's container collection program and will develop a strategy for ANIFODA to expand its program.

Some of the projects' immediate results include:

- 1 Prioritizing the implementation of simple recycling guidelines for used agrochemical containers to new farms instead of attempting to implement more complex and costly certification systems
- 2 Hearing farmers' feedback on the program and addressing their concerns
- 3 Partnering with Nicaragua's Ministry of Agriculture and Forestry (MAGFOR) to increase trainings on container recycling for farmers.

If ANIFODA's recycling program is expanded throughout Nicaragua, as tentatively planned and recommended by the project, the project could, in the long-term, improve the quality of health of thousands of workers and neighboring farm communities, as well as national environmental sustainability. These improvements can lead to higher productivity and a decrease in costs associated

¹ CIA World Factbook. www.cia.gov/library/publications-the-world-factbook/geos/nu/html. March 18, 2010.

² "Agricultural Inputs: Fertilizer Consumption." EarthTrends. <http://earthtrends.wri.org/text/agriculture-food/variable-196.html>

³ Corriols, Marianela, J. Marin, et al. "Incidence of Acute Pesticide Poisonings in Nicaragua: A Public Health Concern." *Occupational and Environmental Science*. November 21, 2008.

About ANIFODA

ANIFODA has 22 members, 14 of which are Nicaraguan distributors and formulators and 8 of which are international companies such as Dow Chemicals. ANIFODA uses its membership fees to implement programs such as used container collection by establishing triple-washing practices. The business association's 20 technicians also help train workers about safety measures and teach them the correct ways to use agrochemicals in the fields.

About Campo Limpio

When workers empty out containers, they must rinse them immediately with water three times so that less residue remains in the containers. The worker then perforates the container with a machete or knife and puts it in a shed (or "jumbo") to store it before transporting it to the recycling center. ANIFODA compacts these containers and transports them to recycling centers. Since the implementation of the Campo Limpio program in 2009, ANIFODA has built two recycling centers, with another being built this year, and recycled 37 metric tons of used containers. The goal is to build a total of eight centers and achieve 75 percent collection rate of used containers from farms that purchase from ANIFODA distributors and producers.

with reduced occupational maladies, thus making the entire agriculture sector more competitive.

Opportunity

From the 1960s through the 1980s, many producers in Nicaragua used virulent pesticides in their crops. Farmers applied these agrochemicals freely without many safety measures—as their dangers were unknown to agricultural workers. Mismanagement of the use and application of these pesticides resulted in hundreds of deaths and high infertility rates for males and females who came in contact with it. This scandal and several massive peaceful marches protesting the situation brought significant international attention to Nicaraguan farms and chemical companies.^{4,5}

Today, agrochemical companies and medium and large farms are well aware of the negative publicity and increased awareness around the harmful effects of agrochemicals. To avoid "claims that we are the people's enemies," says Orontes Lacayo, ANIFODA President and Vice-General Manager of RAMAC, an agrochemical distribution company, ANIFODA promotes the protection of workers' health and advancing environmental conservation efforts through proper agrochemical use and container disposal.

ANIFODA members are also committed to implementing a successful recycling program for used containers to suppress the black market of agrochemicals. Empty containers are resold to unauthorized stores where they are often filled with fake agrochemicals. Small farmers buying these fake products often complain that certain products don't kill their crops' pests, resulting in a poor reputation for many agrochemical companies, whose names are found on the containers. At the same time, empty containers are marketed as household items for water, milk, or food storage, resulting in an elevated number of renal failures and infertility cases in unsuspecting communities.

By implementing a successful agrochemical container recycling program, farm owners and agrochemical producers and distributors would benefit from:

- 1 Higher sales revenues by curbing the pesticide black market that depends on used containers
- 2 Better image and improved reputation of the quality and effectiveness of legally marketed agrochemicals
- 3 Reduction in healthcare costs and improvement in worker output by reducing and avoiding agrochemical-related injuries and sickness
- 4 Better market opportunities for their products

In light of these benefits, ANIFODA worked with BSR and UniRSE to diagnose the challenges to improving its recycling efforts and expanding its Campo Limpio program to new farms.

Strategy

At the onset of the project, ANIFODA had already started its container collection program, named Campo Limpio. The program simply recommends triple washing and puncturing agrochemical containers before farmers return them to the stores where they originally purchased them. From the stores, containers are sent to Campo Limpio's collection centers. Farmers can also transport used containers

⁴ "Victims of Nemagon Hit the Road." Revista Envio. June 2005.

⁵ "Banana Workers Win Against Dow, Shell, Standard Fruit." PANUPS. January 6, 2003. www.panna.org/node/524.

About BPA

BPA, or *buenas prácticas agrícolas*, are agricultural guidelines for the safe consumption of vegetables and similar products established by MAGFOR. The certification process is in part sponsored by the U.S. Department of Agriculture (USDA). BPA includes 165 requirements and requires 80 percent compliance for MAGFOR certification. MAGFOR has BPA-trained technicians to assess farms, provide recommendations, and evaluate farms for certification.



Compacted containers ready for recycling at ANIFODA's center

directly to ANIFODA's collection centers; the association has built two centers so far and plans to build an additional six throughout the country. ANIFODA will inaugurate its third center this year.

ANIFODA also advocates for the implementation of MAGFOR's *buenas prácticas agrícolas* (BPA) among farmers. BPA is a set of 165 guidelines issued by the ministry regarding the safe production of agricultural goods. Although triple washing and container disposal are two of the certification's guidelines that Campo Limpio addresses, the program does not focus on these two issues alone.

ANIFODA and the BSR and UniRSE team worked to find ways that the association's Campo Limpio program could be improved and expanded. The team designed a diagnostic questionnaire to better understand obstacles to implementing and expanding the program in a rural setting. The first phase was to use the questionnaire during field visits. The second phase was to document the findings and develop recommendations. Next, the project team will work on forging alliances with organizations that are working on farmer training programs and leverage those existing networks to expand ANIFODA's efforts in the issue of triple washing and used container collection.

Implementation

As a first step, BSR and UniRSE collected information about ANIFODA's current practices for its container collection program:

- » **Send qualified technicians to run workshops** where workers learn to safely and properly use agrochemicals according to the Campo Limpio method.
- » **Donate personal protection equipment** to several farms so that they can improve their agrochemical application procedures.
- » **Reach out to small farmers** through radio advertisements during baseball games (the most popular sport in the country) and informational posters on the risks of agrochemical exposure that include a short description of the Campo Limpio program.
- » **Promote partnerships between farmers and agricultural product buyers** that condition their purchases on the implementation of higher environmental and safety standards. ANIFODA technicians inform farmers of the benefits of selling to these responsible buyers and the requirements they must fulfill to do so. On the other side, ANIFODA also provides information to agricultural product buyers about which of its farmers are implementing the Campo Limpio program.

To develop the diagnostic tool, the project team and ANIFODA member and Campo Limpio coordinator Julio C. Hernández visited six farms and one agrochemical distributor. These visits allowed consultants to gather information and data needed to generate some recommendations for Campo Limpio improvements. Mr. Hernández also collected important feedback on the program's process since he had the opportunity to speak with several interviewees.

Project visits shed light on some of the barriers to implementing ANIFODA's Campo Limpio program and the more complex BPA guidelines. Some of the main challenges are:

- » **Insufficient outreach to farmers:** With only three technicians working on the Campo Limpio program, ANIFODA does not have sufficient capacity to change the behavior of all farmers and users of agrochemicals. As Mr.

Hernandez explained, “It is hard to reach medium-sized farms and individual, small-scale farmers because they are not organized under a cooperative and often deny entrance to technicians.” ANIFODA is far from its goal of reaching the majority of farms to which its associates sell, fulfilling only 20 percent of its targeted Campo Limpio trainings.



ANIFODA collection center

- » **High operation costs:** ANIFODA members hesitate to approve additional collection centers because of the high costs of running them. For example, according to ANIFODA, one compacting machine costs approximately US\$15,000. The recycling program and construction of collecting centers are financed through association member fees. ANIFODA does not profit from the program and runs its recycling efforts as an expense.
- » **Lack of financial incentives:** ANIFODA claims that containers that have *no* monetary value help thwart container robberies so the association does *not* offer financial incentives for farmers to return used agrochemical containers to recycling centers or collection points. Meanwhile, the black market does provide financial incentives for farmers, who sell their used containers for a profit. This situation has led to widespread sales of fake pesticides and fertilizers that may end up in the hands of unauthorized dealers. According to ANIFODA President, Mr. Orontes Lacayo, “Over 60 percent of agrochemical distributors and stores are not registered as authorized distributors—so long as they pay municipal fees, they can open a business.”

The recommendations formulated by the project team will be formally presented to ANIFODA members so that farms can improve triple washing and collection practices. Below are some of the most relevant recommendations developed by the project to date:



Illegal sale of large containers, usually sold for household storage

- » **Create multi-stakeholder partnerships** with industry associations or groups, NGOs, and local government authorities to create both logistical links for recycling program and to leverage existing channels to increase communication and awareness on the topic. These partnerships could also use their existing networks to train farmers about container collection and triple-washing programs.
- » **ANIFODA members should train their staff** working at agrochemical stores to educate farmers and transfer information on the association’s Campo Limpio program. This channel of communication could reliably disseminate the importance of triple-washing practices and increase the number of containers collected by ANIFODA’s program.
- » **Invest in the construction of smaller collection points closer to farms.** ANIFODA can collect from these smaller centers and transport the used containers to its main collection centers. This approach is especially useful around areas populated by small farmers, who are less likely to be pay to transport their used containers to distant recycling centers.
- » **Provide financial incentives** for farmers to return the containers.

The project team has already presented two recommendations to ANIFODA with the hopes that these would be implemented in the short-term:

- 1 **The expansion of ANIFODA’s container collection efforts should prioritize the implementation of the Campo Limpio program,** instead of advocating for the extensive and broad BPA and obtaining MAGFOR certification in conjunction with promoting the program. Campo Limpio can be used as a platform to raise awareness about improved environmental practices, and farmers can build up their programs to gain MAGFOR certification at a later stage.

It was challenging for BSR, UniRSE, and ANIFODA to obtain buy-in from farmers on all the BPA guidelines necessary to achieve certification. Farmers

found it hard to grasp all the information related to the 165 BPA guidelines and were also unwilling to make the financial investment involved with BPA compliance. BSR and UniRSE recommended that ANIFODA focus on expanding the Campo Limpio program. This way, farmers new to container recycling would be less likely to be overwhelmed and could focus on one goal at a time, building up to the BPA guidelines.

- 2 ANIFODA should contact MAGFOR and other organizations** that currently conduct farmer-training programs so that the Ministry's and other technicians conduct container-recycling workshops focused on Campo Limpio guidelines. Prior to the BSR project, MAGFOR technicians focused on farms interested in implementing BPA guidelines and their workshops covered all 165 guidelines. BSR and UniRSE suggested that ANIFODA contact MAGFOR to implement workshops focused on Campo Limpio, thereby expanding outreach and increasing training capacity. MAGFOR technicians are qualified in and knowledgeable about proper agrochemical use and recycling, as it is also part of BPA.

BSR and UniRSE have also conducted a first round of stakeholder mapping to identify organizations, including ANIFODA members, engaged in farmer-training programs. With this information, ANIFODA can reach out to appropriate organizations and forge the aforementioned links to increase farmer training on the Campo Limpio guidelines.

Results

The information gathering through the project team's site visits and diagnostic tools resulted in a better understanding of the steps needed to strengthen and expand the Campo Limpio program. ANIFODA has agreed to proceed with some of the project's recommendations and to consider others in the longer-term.

SHORT-TERM RESULTS

- 1 A specific focus on Campo Limpio implementation instead of MAGFOR certification.** Farms that did not have recycling practices feared that they could not afford even a handful of the 165 requirements for MAGFOR certification and were extremely overwhelmed. ANIFODA agreed with the consultants' recommendation and decided to shift the focus for the expansion of their container collection program. Farmers re-affirmed their interest in implementing Campo Limpio and remain committed to implementing safe container recycling on their farms.
- 2 Immediate feedback and action taken to improve transportation and storage logistics.** Mr. Hernandez received feedback on the Campo Limpio project from workers, farm owners, store managers, and technicians as a direct result of accompanying the consultant during their visits. He reported that some farms "wouldn't buy agrochemicals from distributors that do not give them the jumbos," so ANIFODA members decided to donate jumbo containers in which used containers can be stored and transported to the collection centers.
- 3 More training workshops.** As a result of the consultants' recommendation, ANIFODA obtained MAGFOR's support to train workers on safe agrochemical use, with a focus on container washing and collection. MAGFOR technicians, who previously focused on implementing all BPA guidelines, are dedicating more time to speak to farmers about triple washing.

As part of the efforts to expand ANIFODA's Campo Limpio program, BSR and UniRSE contacted the Association of Nicaraguan Exporters and Producers (APEN), an association whose mission is to provide services to its 280 members that strengthen their supply chains and allow them to increase market presence, to work with ANIFODA to identify farms for Campo Limpio's expansion. APEN plans to utilize its communication channels and producer networks to promote participation in the program.

Karlyn Stubbert, APEN's Coordinator for Exports and Market Research, was enthusiastic about the program and believes that APEN's members have much to benefit from Campo Limpio. Mrs. Stubbert stated that implementing recycling and agrochemical management practices is not only increasingly a requirement for exporting but it also makes companies more competitive.

ANTICIPATED LONG-TERM OUTCOMES

The successful implementation of the project's recommendations and replication of the Campo Limpio program could lead to the following long-term results:

- 1 Increase the number of collected containers and participating farms.** If offered monetary incentives, more farmers consistently return their containers. Smaller collection points closer to farms are easier to reach and make farmers more likely to return their containers.
- 2 Improve environmental quality.** Before Campo Limpio's implementation, many toxic containers were buried underground or burned, resulting in groundwater and air pollution. As more containers are kept off the fields, contamination levels will decrease.
- 3 Improved worker and community health.** Careful and proper use of pesticides and fertilizers will reduce kidney infections, and sterility and prevent unnecessary deaths. Trained, educated workers also teach their families about the dangers of reusing agrochemical containers, possibly reducing health risks for entire communities.
- 4 Increase in competitiveness for Nicaragua's agricultural sector.** Multistakeholder partnership can result in increased industry competitiveness. For example, some farm product distributors, such as Comercializadora de Mani SA (COMASA), now refuse to purchase peanuts from farms that do not implement Campo Limpio practices. These types of demands could motivate farms to adhere to higher standards to access the higher paying export market.

LESSONS LEARNED AND USEFUL TIPS

Based on the project's successes and challenges, a few additional useful tips for the wide base of stakeholders involved in recycling practices include:

- 1 Educational and training workshops need to be implemented by well-qualified technicians on a country-wide scale.** Experienced, educated technicians with excellent communication skills conducted successful triple washing and container collection education workshops for ANIFODA, resulting in effective program implementation at the farm level. Farm workers especially liked the informal, familiar setting of the workshops. It is important that entities implementing recycling programs finance these activities and seek partnerships with organizations that have existing networks to educate farmers.
- 2 Increase government capacity to enforce the law.** The many unauthorized and illegal agrochemical distributors and stores contribute to the products' black market and seriously set back container recycling programs. Municipalities and national law enforcement agencies should, over time, be given the capacity to ensure that fertilizer and pesticide businesses comply with the law and have all the necessary permits.

- 3 **ANIFODA should implement targeted incentives for container collection to help attract small producers.** So far ANIFODA has been unwilling to offer financial rewards for the return of used containers. The business association should consider a less costly program targeting small farmers, who are in fact less likely to transport their containers to collection facilities because of the costs associated with doing so.

ANIFODA could recruit small farmers to participate in an incentive-based program where they would be paid a small fee per container (capped at a certain number of containers per month). Farmers would only be paid if they bring their clean perforated containers to the collection center or stores where they purchased the products with proper identification. The collection center or stores would verify each farmer against a list of participants before paying. The incentive program could incrementally increase the number of participating farms and containers collected to phase in the costs. Other forms of incentives, such as logistical support for transportation of used containers and greater accessibility to collection points, would help.
- 4 **Government should provide financial incentives for container recycling.** Because of the scale of the problem of agrochemical intoxication and environmental damage, the Nicaraguan government must ensure the protection of the different public goods involved with agrochemical mismanagement. One solution is for the government to devise a policy to impose a refundable tax on fertilizers and pesticides that is refunded to the buyer when the original receipt and container are both returned.
- 5 **Agricultural exporters should be required to obtain environmental management certifications.** Exporters have access to competitive and potentially profitable international commodities markets. These companies, who often purchase from various domestic producers, should condition a sales contract on a farm's successful implementation of Campo Limpio-type programs. When farms do not comply, the exporter should not purchase their products.

About DR-CAFTA Project

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