Government Pesticide Policy in Nicaragua 1985-1989

Allan J. Hruska

Analysis of pesticide use in the Third World often focuses on the forces of supply (manufacturers and marketers) or demand (users), neglecting or trivializing the role of what is often the most powerful force, the local government. Governments can determine which pesticides are imported, how they are distributed, if their price to the farmer is subsidized, who applies them and under what conditions, how much is applied, and how educated and aware users and consumers are about their dangers. Thus governments play an extremely important role in either promoting or restricting the use of dangerous chemicals.

Many governments choose to limit their influence in pesticide use, either because of a lack of political will, or due to a desire to stay out of the way of 'free market' forces. Other governments appear interested in regulating pesticide use, mostly for health reasons, and to that end may pass restrictive legislation (rarely enforced, often because such governments are understaffed or underfinanced). In a few countries, the government does exercise a great deal of control by maintaining monopoly control over the agricultural inputs market.

The recent history of pesticide policy in Nicaragua illustrates the important role that a government can play in pesticide use. It also demonstrates the constraints on and contradictions of pesticide policies in small, dependent countries within the global economy. This article examines the five year period of 1985-1989, evaluating Nicaragua's pesticide policies with a view towards how current policies may affect future pesticide use.

Time of Change

In the last ten years the Nicaraguan government has taken a number of concrete steps to regulate pesticide use. Since taking power in 1979, the Sandinista government has banned the use of a number of dangerous pesticides including DDT, lindane, phosvel, and aldrin and endrin. The government also centralized control of pesticide imports, establishing a state-owned pesticide importation and distribution agency (Empresa Nicaraguense de Insumos Agropecuarios). In 1987, despite the vigorous protests of the Ciba-Geigy and Schering corporations, the government banned the use of chlordimeform. One of the platforms of the recent Sandinista electoral campaign was to provide protection from pesticide poisoning to agricultural workers.

Since 1979 the Nicaraguan government also has actively supported investigation and implementation of alternative control measures (see article on page 6). An early success story was a cotton IPM program that saved the country US$2 million per year through reduced pesticide use. To encourage research on non-chemical control techniques, a new research facility was built in collaboration with the German government. This center is dedicated to the investigation of such alternatives as *Bacillus thuringiensis*, neem, and entomopathogenic nematodes and fungi.

Subsidies

Despite the positive steps taken by the government to encourage reduced pesticide use and implementation of alternatives, governmental economic policies undermined progress. By 1985 all agricultural inputs were free to the majority of Nicaraguan producers through two types of government subsidies. First, all agricultural inputs were brought into the country and commercialized under an extremely favorable exchange rate. The official exchange rate for the Nicaraguan Cordoba versus the dollar fluctuated between 3 and 5% of the black market Cordoba value. Pesticides were imported and marketed at the official exchange rate, providing a *de facto* 95 to 98% subsidy.

The second government subsidy on agricultural inputs came through negative interest rates that the Banco Nacional de Desarrollo (National Development Bank) charged for agricultural credit. For several years during the mid 1980's, the bank's interest rates never reached the levels of inflation, meaning that the total amount repaid (principal and interest) by the producer was worth less than the original loan. The discrepancies reached the point where bank loan interest rates were 1% per month while inflation ran over 30%. In addition to this implicit subsidy, the banks periodically forgave all outstanding loans, never foreclosing or punishing producers for not repaying.

> Producers responded to their own interests, which meant that they should apply pesticides as often as time and other resources permitted, since cost was not a consideration.

The consequences of these policies are easy to predict: the use of agrochemical inputs rose dramatically, as did their waste and misuse. Producers responded to their own interests, which meant that they should apply pesticides as often as time and other resources permitted, since cost was not a consideration.

This economic imperative for the farmer did not coincide with the interests of the country. Beyond the short-term cost to the government of "donating" pesticides to producers, increased pesticide use carried a

continued on Page 4

continued from Page 3

potentially much greater social cost. Induced pesticide resistance, environmental degradation, and long-term health effects have incalculable, but significant, costs.

Cheap pesticides provided incentives for irrational use. Even though pest infestation levels did not increase during the period of subsidies, data suggest that pesticide use did, doubling in maize in a ten year period. Increased pesticide use did not appreciably increase crop yields.

The cornerstone of integrated pest management (IPM) is the use of economic thresholds, the pest population density at which the cost of application equals the value of the crop saved by controlling the pest. When the cost of pesticides is negligible, the economic threshold concept becomes non-functional. Producers revert to calender applications and a mentality of using pesticides in a preventive manner. Subsidized pesticides also put alternative control techniques at a severe economic disadvantage. At the height of pesticide subsidies it was very difficult to talk about reducing pesticide use, either through economic rationalization or replacement by other technologies, because no economic incentive existed for this change.

Besides irrational use of pesticides, flagrant waste was enouraged by distorted subsidies. For example, plastic containers are hard to come by in Nicaragua. In the countryside they are extremely valuable, and a market exists for them as water, gasoline, and diesel storage vessels. The most common source of these containers is recycled pesticide containers. During the height of the pesticide subsidies, the containers became more valuable than the contents, leading some enterprising marketeers to buy the insecticides, dump out the contents, and sell the container.

Pesticides also became extremely lucrative contraband in neighboring countries. Costa Rica and Honduras had relatively expensive pesticide prices compared with Nicaragua, and vigorous smuggling activity sprang up along the borders. One exchange reported along the Honduran/Nicaraguan border was the swap of one gallon of the herbicide Roundup (value US$50) from Nicaragua for one pair of U.S. blue jeans coming through Honduras: a good deal for both traders, financed by the Nicaraguan government that paid for the pesticide.

Logic to the Subsidy Madness

Why, despite a stated goal of rationalizing pesticide use, promoting alternatives to pesticides, and banning toxic chemicals, was the government of Nicaragua encouraging the overuse and abuse of pesticides by giving them away?

> During the height of the pesticide subsidies, the containers became more valuable than the contents.

The answer lies in the overall economic policies of the government at the time of the subsidies, which went far beyond considerations of pesticide use, and constraints put on options due to a severe economic crisis and a weak global economic position.

A general policy of the Nicaraguan government in the mid 1980's was to subsidize basic necessities for the population. For the urban dweller this meant subsidizing staple foods, soap, and the public utilities (electricity, water and transportation). For the rural dweller this meant subsidizing the inputs for agricultural production, including pesticides, fertilizers, and machinery, and providing ready access to credit at favorable rates.

Beyond the broad political goals of the government, two specific issues were addressed by the subsidies on agricultural inputs. The first was an almost desperate attempt to reactivate the country's agricultural production. Throughout the early 1980's agricultural production declined, due in large part to increasing disruption caused by the *contra* war. With its largely agricultural economy, government officials saw the bolstering of agricultural activity as the only route to salvation from the deepening economic crisis. One component of that policy was to provide all the inputs necessary to any producer disposed to work their land.

Probably the most important factor influencing the pesticide subsidies, however, was politics. During 1982-87 the most intense zone of *contra* attacks was the northern region of Nicaragua, the bread basket of the country, where small-scale farmers produce the majority of Nicaragua's basic grain. During the height of *contra* activity, the government constantly sought ways to win the political battle for the hearts and minds of the poor peasant in this region. One obvious tactic in this struggle was to provide producers with cheap inputs.

That the subsidy policy had more to do with political than economic choices was demonstrated by the fact that despite the Ministry of Agriculture's (MIDINRA) repeated questioning of the policy, the Office of the Presidency maintained the subsidies.

Restrictions on Import Control

The role that the Nicaraguan government can play in regulating the *types* of pesticides imported and used in the country is extremely hampered by a lack of resources, which translates into a lack of options. In 1988 Nicaragua imported US$40 million in insecticides and another US$40 million in herbicides, fungicides, and fertilizers. In that same year the total export earnings for the country were US$200 million, compared with US$800 million in imports. Unable to pay cash, Nicaragua imports almost all of its agricultural products either as part of bilateral aid programs or on credit from the manufacturers. Thus the Nicaraguan government cannot choose the products from those existing in the market, but must accept those that are offered on good terms. This limitation permits the manufacturers a great deal of control.

Just as important as the products that are brought in are those that are not.

The economic embargo imposed on Nicaragua by the Reagan administration has restricted the country's ablility to import products from U.S. companies (prior to the embargo, the U.S. was Nicaragua's leading trade partner). The embargo did not make it impossible to acquire U.S. products, for many were available through other countries or foreign subsidiaries, but it certainly slowed down importations.

Often due to a lack of information about new products and funds to import them, the Nicaraguan government does not have access to newer, safer products. For example, in the last three years several new strains of *Bacillus thuringiensis (BT)* have been introduced in the U.S. to control armyworms, one of the important maize pests in Nicaragua. These new *BT* strains could replace Furadan, a dangerous chemical pesticide that Nicaraguan farmers apply by hand without protection (see article on page 10), but the manufacturer is not developing creative schemes to bring it into the country. Without the cash to purchase the product on the open market, there is nothing that the government can do to import it.

Pesticide Flow within Nicaragua

Once pesticides have reached Nicaragua, the marketing forces are very similar to any other country. In fact, far from regulating the advertisement and promotion of products, the government actively participates in the promotion and sale of products through the state distributor, Proagro. Proagro competes with private companies for the pesticide market, promoting their products through advertisements and a well-paid team of salesman. In an attempt to share the wealth generated through pesticide sales, MIDINRA has attempted to take over pesticide sales in some remote parts of the country, and in other areas MIDINRA technicians have become commissioned salesmen for Proagro. This arrangement was reached after years of growing disparity between the salaries of relatively well-paid Proagro salesmen and the very poorly paid MIDINRA extentionists, who often don't have a motorcycle or the gasoline to get out into the field. The potential for conflicts of interest and abuse of pesticide recommendations by extensionists is obvious.

Bank credit policies also play an extremely important role in deciding what pesticides are used at what times by producers. The bank extends credit for all agricultural practices according to their 'technological guide' which estimates the amount of inputs necessary to grow and harvest each crop. The recommendations tend to be very capital intensive and rarely promote the use of economic thresholds for application, but rather base applications on a calendar basis. The credit comes as a package, making it difficult for producers to reduce the use of pesticides independently of bank recommendations.

At a national level, economic pressures have forced the government to make difficult choices. The only pesticide that is produced in Nicaragua (not just formulated) is toxaphene (camphechlor), an extremely persistent organochlorine pesticide banned in many countries. Produced by Hercasa, a subsidiary of the U.S. company Hercules, toxaphene is exported from Nicaragua to generate desperately needed foreign currency. Nicaraguan environmentalists and public health workers have recommended repeatedly that the product be banned, but economic considerations have kept the plant open, and toxaphene is still licensed for use in Nicaragua.

Harsh Economic Reality

Government policy towards pesticides changed abruptly on 14 February 1988, when President Daniel Ortega announced a series of dramatic economic reforms. The reforms were part of sweeping changes in the national economy that reflected the necessity to grapple with ever-mounting budget deficits and a trade deficit that saw imports outstrip exports by 4 to 1. Abandoned were the attempts to provide subsidies, and an IMF-style austerity package was adopted. The Cordoba was devalued 3000% against the U.S. dollar and the preferential exchange rate for importers abandoned, thus eliminating the main source of pesticide subsidies. Credit policy changes required producers to finance 20% of their operating costs (later relaxed for basic grains). In August 1988 the government announced a new interest rate structure for all loans that created a variable rate, indexed to inflation. In the span of a few months, producers witnessed free agricultural inputs achieve world-market prices. The effect of this drastic change was immediate. Producers complained vehemently about the new high prices and began to cut back on many inputs. Suddenly, farmers were interested in reducing their pesticide use, economic thresholds came back into play, and the opportunities for introducing and promoting alternative pest control increased.

The new economic policies and resultant increase in pesticide prices have had a great impact on pesticide use in Nicaragua. For the first time in years farmers are looking desperately for ways to reduce their pesticide use. Suddenly there is pressure to implement integrated pest management programs promoted by MIDINRA. Farmers also are pressuring the bank to change its credit policies, so that they do not have to use as much pesticide as the bank recommends. In Pantasma, a rich maize producing valley in the north of Nicaragua, producers are asking the bank to remove Furadan from the bank's technological recommendations, stating that they do not need the soil insecticide, and that it is too expensive. Now that the government has put into place economic policies that effectively discourage pesticide use, it will have to respond to pressure from producers to change policies that encourage pesticide misuse and to train them in alternative control practices.

Allan J. Hruska is Coordinator of the Safe and Rational Use of Pesticides Program of CARE-Nicaragua. Previously he worked for three years as Economic Entomologist in the IPM in Maize Project at the Instituto Superior de Ciencias Agropecuarias in Managua.