



Case studies highlighting the gendered dynamic around agriculture, trade and food sovereignty.

Estudios de casos que destacan la dinámica de género en torno a la agricultura, el comercio y la soberanía alimentaria

Des études de cas soulignant la dynamique d'après le genre autour de la souveraineté alimentaire, de l'agriculture, et du commerce



This fact sheets are part of a joint collaboration between International Gender and Trade Network (IGTN) and Institute for Agriculture and Trade Policy (IATP) and the entitled project Transforming Women's Livelihoods in relation to food, agriculture and trade.

This project intent to deepen the relation between agriculture, trade and gender with food sovereignty. Its proposal is generating research and facilitating dialogues to strengthen analysis and to identify alternative economic policies in support of food sovereignty, sustainable development, and human rights as critical goals from a feminist gender perspective. It is focused on building capacity among women leaders to advocate for agriculture just trade and food sovereignty.

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Estas hojas de datos forman parte de una colaboración conjunta entre la Red Internacional de Género y Comercio (IGTN) y el Instituto para la Agricultura y la Política Comercial (IATP) y el proyecto titulado Transforming Women's Livelihoods (Transformando los Medios de Vida de las Mujeres) en relación con los alimentos, la agricultura y el comercio.

El objetivo del proyecto es profundizar la relación entre la agricultura, el comercio y el género con la soberanía alimentaria. Su propuesta está generando investigación y facilitando diálogos para fortalecer análisis e identificar políticas económicas alternativas en respaldo de la soberanía alimentaria, el desarrollo sostenible y los derechos humanos como objetivos fundamentales desde una perspectiva de género feminista. Se concentra en la capacidad de construcción de las mujeres dirigentes para abogar por la agricultura, el comercio justo y la soberanía alimentaria.

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Ces feuilles d'information font partie d'une collaboration conjointe entre le Réseau International du Genre et du Commerce (IGTN), l'Institut pour l'Agriculture et les Politiques Commerciales (IATP) et le projet intitulé Transformant les Moyens d'existence des Femmes par rapport aux aliments, à l'agriculture et au commerce.

Le but de ce projet est d'approfondir le rapport entre l'agriculture, le commerce et les sexes avec la souveraineté alimentaire. Sa proposition est de produire des recherches et de faciliter des dialogues afin de renforcer l'analyse et d'identifier des politiques économiques alternatives en faveur de la souveraineté alimentaire, le développement durable et les droits de la personne en tant qu'objectifs essentiels d'un point de vue du sexe féminin. Il se concentre dans la construction de capacités parmi des femmes leaders pour recommander pour l'agriculture la souveraineté alimentaire et commerciale.

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US poultry in the global economy: Impacts on women, livelihoods, and the environment

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The Global Poultry Industry

The volume of chicken traded globally is expected to reach 6.7 million tons in 2007. Brazil is the top exporter, with the U.S. close behind – together they control 75% of the global chicken trade.¹

The global chicken trade is dominated by large, multinational poultry companies which are commonly called integrators because they run a vertically integrated production process where one firm controls every aspect of the operation from the embryo to the market shelf (the combining of production, processing, and distribution into a single entity). Integrators coordinate the supply of chickens through a system of contracts with growers. Growers (poultry farmers) provide the land, buildings, equipment, utilities, and labor in raising the birds to a marketable age, while the companies supply the chickens, feed and medication and buy back the mature birds. (Morisson, 2001)

Vertical integration and contract production emerged in the U.S. in the 1950s and quickly came to dominate the industry. In 1950, 95 percent of U.S. broiler production remained independent. Just 10 years later, 90 percent of the industry was under contracts (Levy, 2000). Today over 99% of all broiler production in the

U.S. occurs in and is marketed by vertically integrated firms.

By the early 1970s, agroindustrial firms across the globe were adopting this production model. In Thailand, Indonesia, and Vietnam production jumped eightfold in just 30 years, to 2,440,000 mt in 2001. China's production of chicken tripled during the 1990s to over 9 million mt per year. Practically all of this new poultry production has happened on factory farms concentrated outside of major cities and integrated into transnational production systems (Grain, 2006).

While this transformation in production has resulted in more chickens produced it has many negative side-effects:

- Increased consolidation;
- Expansion of the industrial model;
- Increased imports and exports;
- Increased exploitation of farmers and workers and growing threat to peasant livelihoods;
- Reduced genetic diversity;
- Concentrated negative environmental impacts;
- Displacement of small-scale poultry producers, many of them women, in developing countries.

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¹ The European Union, China and Thailand round out the major exporters. Major importing countries include Russia, Japan, China and Mexico.

Global trade and investment rules encourage expansion of industrial chicken production. This fact sheet explores the global poultry trade drawing primarily on the experience of the U.S., but will also highlight some key developing country examples.

The U.S. Poultry Industry

The poultry industry represents the most vertically integrated sector of all of U.S. agriculture and food production and could soon be one of the most concentrated as well. In 1950, for example, there were over 250 firms operating in the U.S. broiler industry; today there are fewer than 50. Two firms control 40% of the U.S. market (Tyson Foods, Inc. and Pilgrim's Pride Corporation) and nine firms control over 67%. Production is concentrated in rural areas of the Southeastern U.S. and the Delmarva Peninsula on the Eastern Shore of the Chesapeake Bay.

Integration and concentration provide maximal financial benefits to the major firms and places increasing burden and financial hardship on the growers. Poultry companies often oppose any form of new regulation or enforcement of existing regulations that would limit their power and profitability. The market dominance of this production model has profound implications for the character of rural communities.

Land Use/Distribution

In the U.S., the expansion of the industrial model has intensified land use. For example, in 1999 on the Eastern Shore, more than 600 million chickens were being raised on less ground than produced 380 million two decades ago (Goodman, 1999). In Hall County, GA only one-sixth of the number of contract growers in 1950 produced six times as many chickens in 1997. (TNGE, 2006).

Water Usage

On farms, water is used to clean and disinfect chicken houses, in evaporative cooling systems, and as a medium for delivering nutrients and medicines. It takes 3,500 liters of water to make a kilogram of meat (Segelken, 1997). Modern broiler houses (e.g. typical 500 ft) require 10 gallons per minute (ACES, 2000). Many growers have multiple houses on their farms.

According to a USDA survey, average water usage in US poultry plants is 7.13 gal/bird (USDA, 2003). Each

day slaughterhouses on the Eastern Shore use more than 12 million gallons of water a day to process over 2 million birds a day.

The U.S. broiler industry consumed nearly 43 million tons of feed in 2005, over 1/3 of total production (Shane, 2006). Growing corn and soy, the basic ingredients in chicken feed, represents additional water usage, though specific statistics are not readily available.

Waste and Wastewater

Water contamination has become a major issue confronting industrial poultry operations.

CHICKEN MANURE: On the Eastern Shore, more than 600 million birds are raised each year, producing more than 750,000 tons of manure. Poultry manure is rich in nitrogen and phosphorous and has contaminated groundwater and surface waterways like rivers and bays. Ammonia gas must be ventilated from the chicken houses and can contaminate soil and water. Arsenic, an additive to chicken feed contaminates much of the 26-55 billion pounds of litter or waste generated each year by the US broiler chicken industry and also contaminates the communities in which it is generated or disposed (IATP, 2006).

CHICKEN PROCESSING: The chicken guts, heads, feathers, blood, and wastewater that remain from the processing are rendered down to their essence before being hauled as sludge to fertilize area farms. In 1999, 6,000 gallons of sludge were hauled away each day from Delmarva operations. Treated wastewater is released into nearby streams or sprayed on area farms.

Family Farming

In the U.S., raising chickens has been a source for additional farm income, though many growers are forced to work one or more off-farm jobs. The entry costs are quite high — \$150,000-\$250,000 per chicken house. To secure mortgages, the farm or farm house must often be used as collateral. The integrator may demand or encourage costly upgrades to the houses to meet industry standards—placing the grower in deeper debt. Under the terms of the grower contracts, there is no assurance that integrators will continue to place chickens with the grower.

Studies by the National Contract Poultry Growers Association show that integrators in the U.S. enjoy a 20% to 30% return on their investment while the most

contract poultry farmers can hope for is a 1% to 3% return—despite the fact that the growers invest over 50% of the entire capital needed in the industry (Morrison, 2001) and assume much of the risk. Contract growers effectively face monopoly pricing for the feed and veterinary services and no choice in where to source the chicks they raise—and only one buyer who sets the price for the mature birds.

Studies by Louisiana Tech University and the National Contract Growers Institute (NCGI) revealed that over 71.6% of the nation’s poultry farmers earn a below poverty level income from their poultry operations and by USDA standards would qualify for public assistance (Ibid).

Women and Poultry Production

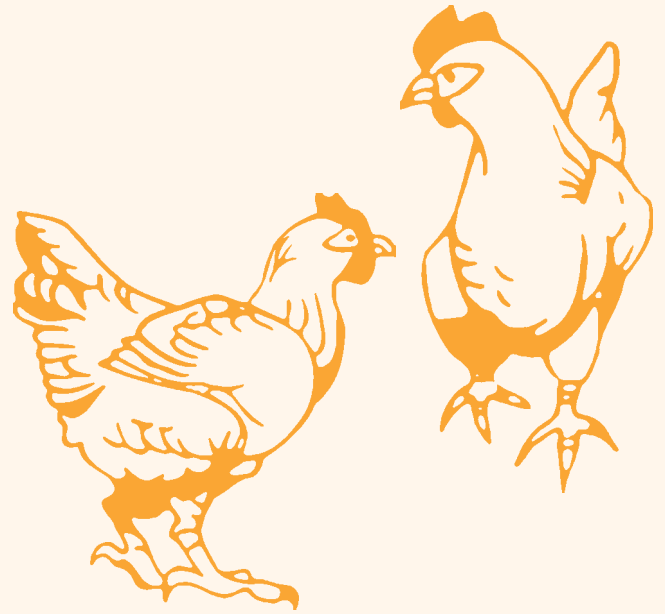
Women are heavily involved in U.S. industrial chicken production. Women are directly impacted by the industry as growers and plant workers, and indirectly as consumers and care givers. However, their participation does not represent empowerment.

GROWERS: In the U.S., contract growing is often undertaken as a secondary source of farm income with women often responsible for overseeing the poultry operation. Antibiotics are frequently given to industrial chickens to fight sickness and promote growth. A recent study found that workers who handle live poultry are more likely to carry antibodies and bacteria that are resistant to some antibiotics. (Tadesse, 2006)

PROCESSING: Work in poultry processing plants is notoriously low pay and dangerous with a high turnover rate. The workforce is increasingly immigrant and quite gender segregated:

Most line workers are women, many in their 40s and 50s. In a plant where about two-thirds of the workers are male, this fact is telling. On-line jobs are the worst in the plant—monotonously, even dangerously, repetitive. These workers stand in the same place repeating the same motions for an entire shift. Women are concentrated in on-line jobs because they’re excluded from all jobs that involve heavy lifting or running machinery... (Striffler, 2004)

Line workers frequently report repetitive stress injuries. Union representation is almost non-existent in



the industry. Women and men are subject to many abuses—failure to pay for time spent donning and docking protective equipment, wrongful termination, and denial of bathroom breaks (even for pregnant women). Female plant workers have also reported sexual harassment and intimidation.

CONSUMERS/FOOD PROVIDERS: Arsenic is routinely fed to U.S. chickens as a feed additive, but is not broken down by the chickens or in the environment. Arsenic was found in 55% of the brands tested in a recent study and ALL of the fast food chicken products (IATP, 2006).

FAMILY HEALTH CARE PROVIDERS: Avian Influenza has ravaged chicken flocks across the globe and could become a global human pandemic. Attention has focused on small backyard producers and migratory birds as the main sources of transmission, but a new report argues that it is industrial breeding and growing that has transmitted the avian virus. The lack of genetic diversity in industrial flocks and the close quarters in which they are raised allows the concentration necessary for rapid mutation and transmission of the virus. An avian influenza pandemic in human populations would significantly increase women’s care responsibilities for the sick.

Local and Global Connections

Food Sovereignty

Vertical integration, industrial production and increasing global competition in the poultry industry have raised new questions locally and globally about issues of food sovereignty. According to Via Campesina, food sovereignty is defined as:

... the right of peoples to define their own food and agriculture; to protect and regulate domestic agricultural production and trade in order to achieve sustainable development objectives; to determine the extent to which they want to be self-reliant; [and] to restrict the dumping of products in their markets... (PFSN , 2001).

INDUSTRIAL CHICKEN PRODUCTION AND FOOD SOVEREIGNTY IN THE U.S.

The industrial production process in the U.S. has severely curtailed the right of farmers to produce food and the right of consumers to decide what they consume, and how and by whom it is produced. Industry-wide standards reinforce the dominance of confined animal feeding operations, effectively mandating production processes as opposed to quality and safety of final output.

Consumer choice is often limited with only one or two brands sold in local supermarkets. Organic and free range standards offer minimal improvements on what animals are fed and how they are treated. However they do not necessarily offer a more humane alternative to industrial production, nor do they address the fair treatment of growers and workers. Major integrators are beginning to enter these fast growing, niche markets.

INDUSTRIAL CHICKEN PRODUCTION AND FOOD SOVEREIGNTY IN DEVELOPING COUNTRIES

In many developing countries, raising chickens is vital for family nutrition and income, with women often responsible for rearing the chickens. Production is done sustainably. Low-cost grain and household scraps are often fed to chickens. Chickens reach maturity in a few months, providing a renewable source of protein while chicken waste can be used as fertilizer for family fields. The following example from Laos is indicative of the situation in many developing countries:

The poultry industry in Laos is predominantly one of smallholders, raising free-range, local chicken breeds nearby their dwellings for meat and eggs, mostly consumed by the household or sold locally for income ... An average village has around 350 chickens, ducks, turkeys and quail being raised in small flocks interspersed among village homes by about 78 families, with women primarily responsible for the flocks. (USDA, 2005).

The arrival of multinational firms, facilitated by liberalized trade and investment rules, with their model of industrial, vertically integrated production can destabilize smallholder chicken production and threaten community, environmental resources. Open markets can be replaced by contracts. Wealthy integrators may perceive smallholders as competitors and advocate for policies that would further expand the industrial model. As happened in the U.S., the once thriving system of smallholder production, and its widely shared benefits for income generation and nutrition transformed into a system which concentrates power and wealth within a few firms.

US consumers prefer white meat, but as US broiler production expands there is the unavoidable production of additional dark meat, the bulk of which is exported, often to developing countries. Between 1960 and 2005, US broiler production increased 707% while US exports increased 5,736%. Because of the price premium on white meat, subsidies to corn and soy, low-wages throughout the industry, and externalization of key expenses (chicken houses, waste disposal), the dark meat can be sold at rock bottom prices, often displacing local production and threatening small producer's livelihoods, many of them women. Increased market access for these U.S. chicken exports has been pursued aggressively by the U.S. in recent trade negotiations.

Rural women producers in developing countries are seeing their markets decline as global production chains and imports transform poultry from a low-cost source of income and nutrition to a global commodity.

Exploitation Across Borders

The success of the U.S. poultry industry in increasing production to unprecedented levels, creating new consumer demand, and turning chicken into a lucrative global commodity comes at a high price for farmers, workers, consumers, and communities-many of them women-in the U.S. and abroad. This paper focuses on the U.S. industry, but as noted earlier, the vertically integrated model has been adopted in many countries which are now ex-

Case study on corn productive chain

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Corn production and world trade

Corn is one of four cereals that make up for more than half of the world's nutrition, the staple food in 12 countries in Latin America and 6 in Africa, and a common food for one fourth of the global population. In 2003, global corn production reached 637,444,480 tons, while it is estimated that in 2006 it will reach 693 million tons.

The industrialization process in agriculture has favored a growing concentration of production. Three countries concentrate more than 60% of corn production worldwide: the US, China and Brazil. The US is the world's top producer and exporter, with 40% of global production, followed by China with 18% and Brazil with 8%. The US has 140 million hectares of corn planted, of which 20% of the total cultivated area (some 28 million hectares) is transgenic corn.

World trade in this cereal is estimated at 79 million tons, the highest figure in the last three trade years (Commerce Exchange of Rosario, 2006). According to world trade predictions, in 10 years Argentina will become the world's largest exporter of corn after the US, beating China because higher prices attract more investments toward the South American country while Chinese farmers are focusing more on local demand.³

Globally, 10 companies currently control half of the global seed market, and only six control all of the trans-

genics market. DuPont and Monsanto jointly dominate the world's corn seeds market (65%). In 2001, Monsanto controlled 91% of the global market of genetically modified seeds, and acquired more than 60% of the Brazilian market of conventional corn seeds within two years (1997-1999).

Corn production in Mexico and the NAFTA effect¹

Mexico has a strategic significance in world corn production for being its place of origin and domestication, and one of the world's genetic diversity reserves.² In spite of a loss in profitability regarding other crops, corn continues to be the most important crop in the country, with a production of more than 18 million tons.

Around 8.5 million hectares (equal to 50.3% of the total planted farmlands in Mexico) are planted with corn, and 93% of the country's farmers – mostly with plots under five hectares – and 12 million peasants live off it. Of the total number of corn farmers, more than 80% use their own seeds, adapted to a huge diversity of geoclimatic situations. Although Mexico has experienced more than 50 years since the green revolution, hybrid and commercial seeds are only used by 15% of farmers; the rest use native corn and continue to maintain and reproduce its diversity.

Until 1993, Mexico was self-sufficient in corn production, but since 1994, when the NAFTA came into effect, the

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¹ North American Free Trade Agreement

² The country with the highest genetic variability and diversity of corn is Peru, where 55 different types are cultivated (Manrique, 1997, quoted by Valladolid Rivera, s/f).

³ This is due in part to the growing competition from the imports of US corn, which compete in the market with artificially low prices. These low market prices are a result of massive over-production and the elimination of a price floor in the 1996 Farm Bill. The end result has been market prices at below the cost of production, and record-high farm subsidies designed to keep farmers on the land.

support structures of national production have been gradually lifted and corn prices in Mexico have fallen steadily. Indeed, corn prices for local farmers dropped in 1982 from 1,300 pesos a ton to less than 600 pesos a ton in 1998. This is due in part to the growing competition from the imports of US corn, which compete in the market with artificially low prices as a result of government-subsidized crop production. This process means that while domestic corn production has fallen, corn imports have tripled. Meanwhile, many Mexican corn farmers, who have traditionally planted local highly genetically diverse species, have been forced to leave their plots in search for other jobs.⁴

At the same time, between 1994 and 1999 the price of tortillas rose 500%. Most of that growth is due to the ensuing inflation after the peso crisis (1998) and the lifting of consumer subsidies. In spite of that, prices rose in real terms by 279%. The price of tortillas almost tripled while the price for farmers dropped by half (Nadal, 2000, quoted in Heinrich Boell, 2006).

Corn production in Mexico had a negative effect during the first seven years of NAFTA: planted land fell 3%, production some 4.7% and yield 2% (Porter, s/f). NAFTA expected free-from-tax imports of 2.5 million tons of corn coming from the US and 1,000 tons coming from Canada. Once this quota was exceeded, Mexico could apply a tariff-quota according to the basis imported and the deregulation category. The tariff-exempted import quota would rise yearly until it covered all imports. However, between 1994 and 2002 Mexico imported more than 15 million tons of corn over the quotas. Also, between 1996 and 1998 it imported corn over the quota expected for the 14th year of NAFTA (2008), which caused more than a 30% fall in farmers' earnings. This policy of discouraging national production has increased food dependency – in 2002, 25% of domestic consumption came from imports – and deepened decapitalization and poverty in rural areas (En defensa del maíz, 2002).

Effects from economic liberalization among peasants and food sovereignty

The US liberalized the commercial planting of transgenic corn in 1996 and has systematically refused to distinguish between conventional and transgenic corns. In 1999, of the 5 million tons of corn imported from the US, 250,000 were

transgenic, to be used in the making of tortillas, beverages, corn fructose, fritters, and other corn-related products.

Being a country of origin, Mexico does not allow the commercial planting of transgenic corn, and starting in 1999 all permits to experiment on the field were cancelled. However, in 2001 the University of Berkeley and the Unión Zapoteca-Chinanteca detected transgenic contamination among native corns in Oaxaca's Sierra Norte. Also, through several tests, contamination was shown in communities outside Oaxaca's Sierra Norte and in some communities in the state of Puebla.

The penetration of transgenic seeds among corn producing countries has created huge resistance from peasant rights groups. In Mexico, the Unión Nacional de Organizaciones Campesinas (UNORCA) and Vía Campesina oppose the introduction of transgenic seeds, believing they undermine food sovereignty and lead peasants to depend on multinationals and patented seeds.

In October 2006, the leaders of corn producing organizations in Mexico repeated their demand to exclude corn from NAFTA and emphasized the need of confirming a suspension in the planting of transgenic corn countrywide, as well as the need to modify the Biosecurity Act on Genetically Modified Organisms. They also demanded the end of the privatizing and free trade policies in the corn market.

Women-corn relationship

In Mesoamerican cultures, the relationship of peasant women with corn continues to be strong. In Peru, following a tradition from the pre-Hispanic era, it is men that plow and women who place the corn seeds. Women who place the seeds in the plow should be fertile – in other words, able to have children – so they can transmit that ability to the farmed land and the corn seed that is plowed. Also, women are the ones that choose and keep the seeds in storage. Currently, they are the only ones that enter the cellar to take out the corn and use it as food or seed (Valdadolid Rivera, s/f).

In Mexico, planting the corn fields, drying the cobs, shelling them, cooking and grinding the grains until you have a uniform dough, beating it constantly, and frying the tortillas one by one are tasks that make up the close relationship between corn and women in their daily lives. This

4 According to the Unión de Organizaciones Campesinas (UNORCA, 2005), a peasants' union, each year 400,000 people leave the country, most of them peasants (<http://www.unorca.org.mx/declaracion.htm>)

implies getting up at dawn, lighting the fire – with firewood –, fetching water, grinding and drying the corn along with preparing beans, and putting chili or some sauce. The operation is repeated with every meal the family has daily. The chores grow in parties, where most of ritual and festive foods are based on corn. Also, and given the large migration of men toward northern Mexico or the US and Canada looking for better incomes to maintain their families, women take charge of their children’s education, take care of the home and obtain food. The text of a flyer written by indigenous women reflects how they perceive their own actions: “We are present and are an important part of our communities in various ways: in the land and the community because we work with Mother Earth. We take part in plowing corn and plowing vegetables to obtain food. We prepare bread, mole and make tortillas. We make present our beliefs, our customs, our language, our way of living, our way of being”...

Apart from the tasks mentioned, women take part fully in the harvest and also play a key role in its storage and management. In the transformation of corn, they perform a strong grinding activity when they have no access to public mills for lacking the resources to carry out their daily *nixtamal*.⁵ In the preparation of tortillas, the daily exposure to the fire’s smoke is known as a very serious health problem among peasant women that can have serious consequences for breathing and eyesight. Bodily posture, crouching, also causes backbone problems.

Regarding the role that peasants have played in the conservation of species and the way control is being lost on genetic variability, a representative from peasant communities of the Tuxtleca, Veracruz region, member of the Colectivo de Educación Integral de la Mujer (CEDIM), said: “Women and men peasants have created thousands of varieties of corn with different colors, flavors, sizes, that adapt to all of the country’s fields, whether they are high, low, dry, humid. It has been a creation of love and care, which we nurture and it nurtures us, it is the heart of what our forefathers have given us and the main heritage we have for our children. Now all this is threatened by the greed of a few companies that want to appropriate this treasure in order to strip us of our seed”.

In Ecuador, corn is one of the main sources of food for peasant families. When it is scarce, it is women who go out looking for corn in places where the harvest takes place later, and they exchange it for other products (Bravo, 2006).

In Colombia, the project “Semillas de Identidad (Identity Seeds)”⁶ rescues the work rural men and women carry out to preserve the varieties of corn and the products made from it. Since the program started, 25 varieties of native corn and more than 50 products made from these corns have been identified (Grupo Semillas, 2006).

In Guatemala, peeling the husk from the cob and choosing the seeds is a sacred task done by women. They are the ones that choose the seeds for domestic consumption, the grains for planting and the grains meant for sale or barter for farm equipment or other seeds in local seed fairs (FAO, 2002).

Impact from the liberalization of water supply services in the lives of women

Among peasant communities, women are in charge of fetching, carrying and storing the water needed for the harvest or for their families, for which they often need to walk long distances. The privatization of water use turns this natural element into a commodity, limiting its use and submitting it to market rules. This measure directly affects lower income sectors, especially women, who are marginalized from production processes and are further displaced from their control over natural resources.



5 Nixtamal: Treatment of corn with lime for making tortillas.

6 Semillas de Identidad is a Campaign that aims to spread and recover the varieties of native corn and their use in the communities. Its name, Semillas de Identidad (Identity Seeds), comes from being the staple food in the region.



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The global dairy sector, Brazil and the participation of family farming

John Wilkinson*



Introduction

Dairy production has traditionally been a crucial component of family farming, particularly family farming influenced by European traditions, where the cow along with the pig were considered members of the extended family and responsible for its resilience and capacity for expansion into frontier lands.¹ Cows graze on marginal spaces on the farm inapt for other crops and they can be looked after by members of the family not centrally involved in other farming activities. Milk is a vital source of nutrition for the farming family and can be readily exchanged with neighbours or sold at local markets. It can also be used as an ingredient in cooking, transformed into yoghurts or other fresh products and its nutrients preserved over longer periods as cheese. With the emergence of urban markets milk production from family farming has shown itself to be particularly competitive given its low costs, based as it is on “marginal” inputs both of land and labour. In comparison with annual crops it has the advantage of providing regular income, either daily in informal markets or fortnightly in the case of industry. As such it has become a vital source of daily household expenditures. The cow was not native to South America but was quickly disseminated with the arrival of the Spaniards and the Portuguese and in Brazil most family farms have dairy activities.

Global Overview

The domestication of animals for milk probably goes back as far as 10,000 years, as also the development of its prin-

cipal sub-products – yoghurt, cheese and butter. Climatic conditions for this highly perishable product have heavily influenced patterns of consumption with fresh milk consumption being significantly higher in the temperate climates of Europe and Scandinavia and from there to the new countries created by immigration or conquest, especially the United States, Oceania and the Southern Cone. Age is also a crucial factor in consumption with fresh milk being consumed primarily by the young and sub-products, especially cheese, increasing in importance with age. Each of the principal sub-product categories was discovered in the ancient civilizations of the East and the Middle East, but the requirements of preservation led to the predominance of fermented products, especially yoghurts, in these regions. The diversification of cheeses emerged in temperate cultures, where lower acidity and salt requirements allowed for slower and more complex maturation processes. Butter, on the other hand, was often considered a luxury and a cosmetic product, assuming importance for food consumption primarily in the colder northern regions.

The emergence of the industrial dairy system was marked by the patented inventions of condensed and evaporated milk, which led to the early dominance and internationalisation of Nestlé in Europe and Carnation in the United States as from the second half of the nineteenth century. An equally important early innovation was the development of margarine as an alternative to butter, inaugurating the competition between the vegetable oils and dairy food chains, leading, today, to the launching of soy-milk. Early internationalisation of the milk sector took the form of foreign direct investment by Nestlé and Carnation,

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¹ In different parts of the world, sheep, goats and buffalo are also important sources of milk and dairy products but these will not be considered here.

but their innovations allowed for the development also of world trade in condensed and evaporated milk.

With the exception of New Zealand and to a less extent Australia, the dairy industry emerged and developed within the framework of local, then regional and finally national domestic markets, in accordance with the development and diffusion of more sophisticated preservation technologies. In temperate climate countries, milk production was a component of the family farm system and as such was highly decentralised, leading to an organizational model dominated by cooperatives which assumed responsibility for milk collection and eventually processing, although this was often developed by independent industries. Public health considerations accelerated the adoption of pasteurisation and sterilisation technologies (Latour, 1988). Genetic improvement geared to milk productivity per cow, combined with the mechanisation of milking allowed for the emergence of more specialised dairy production. Non-specialised production of milk within a mixed family farming system, however, predominated.

World trade in dairy products was historically marginal accounting for some 5% of total milk production and taking the form primarily of dried milk. Although, as we have mentioned, New Zealand and Australia developed their dairy sectors for export, most trade was comprised of the subsidised export of milk surpluses themselves the result of subsidies, primarily from Europe but also from the US. A more competitive form of world trade developed in the case of cheeses, particularly high quality, often “origin” products, although here too the subsidised raw material influenced trade flows. In addition to Europe, the U.S. and Oceania, the Southern Cone countries, Argentina and Uruguay also participated in export markets. The internationalisation of fresh dairy products took the form, predominantly of direct investment in foreign markets by the leading global players.

The organisation of the dairy sector was transformed by the simultaneous development of new technologies for fresh milk and by the substitution of traditional retail by the supermarket system. Parmalat seized on the revolutionary potential of the UHT fresh milk preservation technology, combined with Tetrapak proprietary packaging which extended shelf life from one or two days to three months. The old division of the dairy chain between cooperative or Market Board control of fresh milk, and private firm, increasingly multinational, control of dairy products was undermined. Parmalat took over the fresh milk market, particularly in less temperate countries where daily door-to-door sales had never been viable, and in doing so severely weakened the cooperative organisation of the sector, especially so in Brazil, one of its leading foreign investment markets.

Local and regional markets gave way to national circuits and daily purchases were replaced by the stocking up of fresh milk, now integrated into the weekly supermarket shopping. In Brazil, “Long Life” milk, as it was called, had 5% of the Brazilian fresh milk market at the beginning of the nineties, but 74% by 2005 (www.ablv.org.br). It should be added, however, that the cooperative sector, in Brazil and on a global scale, in its turn has undergone a radical restructuring, and has established firm positions in the fresh dairy segment, so much so that Nestlé, traditionally dominant in yoghurts and dairy desserts, has increasingly focused on the infant formula and ice-cream segments. A negative consequence of this “entrepreneurialisation” of the cooperatives has been a tendency for the exclusion of small, non-specialised dairy farmers. On the other hand, a new generation of cooperatives would appear to be emerging based on innovative forms of organization of the family farming dairy sector, restoring in some measure its capacity to compete in the supply of raw material (Magalhaes, 2005).



Institutional Reforms and the Mercosul in New Global markets

The restructuring of the fresh milk market coincided with institutional and global market reforms profoundly transforming the dynamic of the dairy sector. As in other markets, Government intervention and regulation has been eliminated or severely restricted, although it must be noted that the developed countries have resisted the rapid elimination of subsidies. Nevertheless the European Union has undertaken important reforms of the dairy sector somewhat mitigating its negative impact on global markets. In the Brazilian case, reforms coincided with moves to regional integration involving two of the world’s most competitive

dairy producers. European Union imports were largely replaced by exports to Brazil from Argentina and Uruguay. For a time this was a harmonious arrangement since Brazil not only had a historical shortfall amounting to some 10% of its total consumption requirements but was experiencing sharp growth at the base of the consumer pyramid as a result of the economic stabilisation following on the Real Programme in 1994.

At the same time, regional integration, with its moves to the harmonisation of standards, implied strong pressure to improve milk quality in Brazil. A national programme to this effect involving considerable negotiation and mobilisation to guarantee greater compliance conditions and more flexible timetables for regions and classes of producer was implemented. Tensions within the Mercosul led to the recourse of safeguard measures by Brazil against dairy imports² (Noffal & Wilkinson, 1999). Shifts in respective exchange rates and the crisis in Argentina, combined with moves from dairy to soy production in this country, provided favourable conditions for an expansion of the Brazilian dairy sector. Unexpectedly, although in retrospect unsurprisingly given the competitiveness of its agribusiness sector, Brazil made up its 10% production deficit and by 2005 had become, albeit as yet only marginally, a dairy exporter.

In this same period, the dynamic of the global dairy market has similarly changed radically. In the '90s, Nestlé and other leading players – Parmalat, Danone, Bongrain, Dutch and Danish Cooperatives – saw Argentina and to a less extent Uruguay as the future base for regional and global exports. Today, Nestlé, now in a joint-venture with Fonterra, the New Zealand leading dairy firm, has chosen Brazil as a platform for its exports in the whole of the Americas, especially Mexico, the world's second largest importer of dried milk. Brazil's principal dairy producer organization, *Leite Brazil*, no longer sees Europe or the United States as the principal export targets, but focuses on the emerging Southern markets. This coincides with a general shift in Brazil's agribusiness exports, which in 2005 for the first time were directed more to the South than to the North. Brazil now looks to the Middle East, Africa and the emerging giants, India and China as urbanization, increasing per capita income and the westernisation of food diets increase demand for dairy products. These latter two, however, have sharply increased their domestic production, although it is unclear if China can long avoid becoming a dairy importer.

The Future of the Family Producer and Gender Relations in Dairy Production

While the family farm sector would still seem to have a firm position within the dairy production chain, many hundreds of thousands of producers have been unable or unwilling to bear the costs of adjusting to new market conditions. These, as we have seen, may still survive in the informal fresh milk sector. Many, however, have switched to or increased their production of cheese, also largely for the informal market. The market for cheese has grown considerably with the increase in out-of-home eating and/or “take-aways”, particularly in the form of pizzas. In both cases, the consolidation of the family farm in these markets depends on access to adequate and clean supplies of water given the risks of contamination with dairy products. Evidence from Brazil, which is probably indicative of the situation in many other countries shows that traditionally women are responsible for dairying to the extent that this remains a subordinate activity within the family farm system. She takes on not only the twice a day milking, but also the cleaning, caring and reproduction of the animals. In addition she will often make cheese and other products, basically for family consumption. She generally sells a part of the milk and retains the takings from sales for domestic expenditures. Traditional dairying, therefore, in spite of its onerous character, was also a source of autonomy for women within the family farm set-up. It has been noted that this situation changes once dairying assumes greater importance within the farming system, in the form either of commercial fresh milk or cheese production. In both case, the “man-of-the-house” now assumes responsibility, whether negotiating the market, communicating with rural extension or attending professionalisation courses. He also now centralises the remuneration from sales, undermining a key area of women's autonomy and probably also redirecting priorities for domestic expenditures. Women, therefore, face a double exclusion: as family farmers by big business, and in relation to men within the family farm once the activity becomes modernised (Paulilo et al, 2000). While men more readily adopt the modernising practices which undermine the family farm's sustainability, “women deal directly with the cow, the pig, the chicken, the manioc, the peanut, ensuring the entire family produce... They think about the health of their family and how they will make do to buy whatever the family still needs with the eggs that are left, the chicken they don't need to eat,

2 Brazil claimed that its partners were taking advantage of different external tariffs to redirect European dairy exports into the Brazilian market.

the cheese, the milk; they know that these things generate some return and that they don't live exclusively off the soy bean harvest once a year." (Castro Guedes & Souza, 2005).

Concluding Remarks

In a remarkably short period of time Brazil's dairy sector has undergone dramatic changes. It was thought that the combined pressure of new quality and logistical demands would lead to a generalised exclusion of non-specialised family farm dairy production. The shift to export competitiveness would only seem to confirm this prognosis. While for many this has been true, new forms of organization and support both from public policy and private organizations, often intermediating international cooperation resources, would seem to be allowing important segments of family farming to remain in dairying, either within the

dominant supply chains, the persistent informal sector, or in the emerging artisan cheese and dairy products sector. Historically dairy production has been the anchor of family farming in many regions of the world since it is an important guarantee of nutrition for the farming family,³ it provides regular cash flow for daily necessities and optimises the labour and land advantages of family farming. Women have often been central both in milk and artisan dairy production. The maintenance of a mixed farming system and the development of post-harvest activities provide greater employment opportunities for the family and allow for greater integration into a rural environment that promotes territorial values and the development of the local economy. Research into the responses of the family farm to the challenges of market restructuring in the dairy sector, and particularly the role which women play in this mixed farming system, could provide a crucial input for evaluating the viability of this farming model in today's world.

3 Contrasting starkly with Nestlé's promotion of dried milk in conditions where clean water could not be guaranteed.



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Impact of trade liberalization on Kenya's maize production

Edith Makandi Wanjohi*



Introduction

The Republic of Kenya covers an area of approximately 582,646 sq. km. comprising 97% land and 2.2% water surface. Of this land, only 16% can be classified as medium to high potential with the remaining land mainly arid or semi-arid. Kenya's population is 30 million people according to 1999 census. About 80% of Kenyan population lives in rural areas and derives their livelihood from agriculture. The sector is therefore the main source of national income and employment creation for over 80% of the population and contributes to poverty reduction and food security.¹

Maize is the key food crop in Kenya, constituting 3% of Kenya's Gross Domestic Product (GDP); 12 % of the agricultural GDP; and 21% of the total value of primary agricultural commodities.² Maize is both a subsistence and commercial crop, grown on an estimated 1.4 million hectares by large-scale farmers (25%) and smallholders (75%). The total annual production of maize between 1988 and 1998 was 2.3 million metric tons fluctuating from 1.7 million metric tons in 1993/1994 to 3.4 million tons in 1988/89. The annual national maize consumption is about 32 million bags (2.9 million MT) the shortfall of production is met through commercial imports.³

Water

Kenya experiences a bimodal type of rainfall with the "long rains" fall between March and May while the "short rains" fall between October and December. The intensity and

spread of the rainfall in each region determines the effectiveness of the rainfall. The average annual rainfall ranges from 250 to 2500 mm. There are many different rainfall distribution types. Farmers depend mainly on rain to grow crops, which has proved inefficient due to the irregularity of the rainfall. Kenya depends on water from mainly the following resources: lakes, rivers, hydro-geological (ground water), surface water and dams. In 1997, the total number of water supplies maintained by government of Kenya was 401 (107 in urban areas and 294 in rural areas). In arid and semi-arid areas, the inadequacy and unreliability of water supplies poses the most serious development constraints on agriculture, livestock and even human resource and development activities.⁴ Some of the challenges in regard to water that renders effective farming impossible in Kenya include: inadequate sources of water; high cost of irrigation inputs; lack of proper technical knowledge; high relief intensity; sodic and saline soil.

The role of women in maize production in Kenya

The idea that women are one of the income earners in the family is not something new for women in rural areas. Women are traditionally involved in planting, tending and harvesting maize. Their role does not stop after harvesting the maize, but continues, as they are responsible for preserving and storing seeds for the next season. Their role in maize storage is crucial because they have to ensure that the maize is stored so that neither weather nor pests affect it.

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1 Agrarian Reforms and Rural Development: New Challenges and Options for Revitalizing Rural Communities in Kenya. National Report from Kenya. March, 2006.

2 Government of Kenya 1998.

3 Primary Agricultural Sector: Supply Side Policy Framework Strategies Status and Links with Value Addition, by Eng. Mwamzali Shiribwa.

4 Gateway to Land water Information in Kenya National Report, by Peter Macharia, July 2004.

Women play a major role in addressing food security and nutrition goals. In Sub-Saharan Africa women grow 70% of food for family and local consumption. As men's participation in agriculture declines, the role of women in agriculture production increases. Women continue to be primary custodians over food acquisition, food processing, food marketing, and ultimately over household food.⁵

Another major challenge that faces women in maize production is the low rainfall in arid and semi-arid lands. In the medium to high potential areas the major problems are soil erosion, poor seeds quality, poor infrastructure, low soil fertility, leaching, low soil water holding capacity, lack of credit facility for the farmers, population pressure on agricultural land and low technical knowledge on agricultural production and storage.

Impact of liberalization and maize marketing

Following independence in 1963, the Kenyan agricultural sector was dominated by government parastatals. These organizations were intended to assist producers in processing and marketing of agricultural commodities. Maize was managed by marketing boards/ cooperatives such as the National Cereals Produce Board (NCPB). By mid 1980s it was already evident that marketing through the government owned organizations could not be sustained due to mismanagement of these bodies. The government strictly controlled all aspects of maize marketing until 1986 when gradual liberalization started which was completed in 1995. This is where the trouble began for maize farmers in Kenya.

In the early 90s, the government was forced by multi-lateral and bilateral donors to implement the liberalization and privatization policies, albeit reluctantly. This action also entailed divestiture of the government-owned state corporations that had served as the main and only marketing outlet for agricultural commodities. The reform also involved privatizing agricultural marketing, removal of price controls and the removal of grain movement, deregulation of domestic and external trade, and deregulation of interest rates.

In 1996, the government of Kenya introduced a policy paper on *Renewed Growth and Economic Management* (session paper 1 of 1996). Under the new policy the economy was to be liberalized with a view to removing all monopolistic trends, divesting government investment in commercial activities, and encouraging private sectors to get

involved in running the formally government-owned and run parastatal organizations. In 1998 there was an estimated production of 3 million tons of maize, about 40% of which was marketed. Liberalization was implemented without the formation of alternative marketing institutions. Maize prices fluctuated substantially according to competitive market forces with limited government moderating effects through open markets interventions and import tariffs. But currently the rules of regional and global trading organizations have rendered even that government intervention impossible. Private sector participation at all levels in the marketing system increased substantially.

The common objective of these reforms was to enhance productivity, raise the level of production of basic food commodities to their potential; improve quality and standards of products and diversify exports leading to high economic growth. The reforms have, however, not resulted in the desired economic recovery of maize production and the economy. To some degree the poor performance has increased and led to the import of genetically modified foods and dumping of food onto the Kenyan markets. As a result farmers can no longer afford to sell their produce at a good market price. These changes have also killed local maize production and farmers can no longer even feed their own families. As a result of market liberalization, farmers no longer process and market their own food.

Our environment, our wealth

Two other trade related issues are also affecting maize production and food security in Kenya: Genetically Modified Organisms (GMOs) and Intellectual Property Rights (IPR)

Genetically modified organisms

*"...Future generations are likely to look back to our times and either thank us or curse us for what we do- or not don't do- about GMO's and biosafety and the right thing is not simple"*⁶

There is a growing debate about the potential value of modern biotechnology, and in particular of transgenic technology, to contribute to achieving Africa's development and food security goals. The challenge facing policy makers is not only to understand what the technology can

5 Trends in Women's Contribution to Agricultural Productivity: Lessons from Africa, by Ruth K. Oniang'O, PhD. August, 1999.

6 CBD and UNEP 2003

do, or has done elsewhere, but to establish what opportunities it holds for the African context. There are three critical issues around GMOs:

- Whether or not GMOs offer a sustainable food security option; In this case, whether Genetically Modified maize can replace traditional maize, hence increase maize production;
- What the implications of transgenic technologies are for biosafety, as well as for human health and well-being; and
- The extent of existing African capacity to undertake research, and efficiently monitor and evaluate genetically modified (GM) products and their use.

GMOs and Food Security

- Global planting of GM crops jumped by 20% in 2004. For the first time, the hectareage growth in GM crop areas was higher in developing countries than in developed ones.
- Increasing crop resistance to insects and diseases and reducing weeds could help reduce crop losses and reduce dependence on costly fertilizers and herbicides, resulting in valuable savings for poor-resource farmers. However, the challenge of improving food security is a more than just increasing food production.
- Due to GM licensing agreements and production systems, farmers are pushed to monoculture and the variety of crops planted for household consumption is reduced.

GMOs and Human Health Concerns

- Increased use of herbicide-tolerant GM crops may pose a new risk for environmental and human health. For example glyphosate is a major formulation in “Round-up-ready” crops and is now the world’s best selling “total” herbicide. Due to the introduction of GMO Round-up Ready crops, human and environmental exposure to the herbicide is expected to increase. Moreover there is strong evidence that products containing glyphosate are acutely toxic to animals and humans. Women are at a high risk of such toxic substances because they use such products on the farms.

- Increased antibiotic resistance may result. For example, Novartis’ Bt maize contains a marker gene, which codes for antibiotic resistance in E.coli. There is a risk that if animals or humans consume Bt maize-based products such as cattle feed or starch, some antibiotics would be rendered useless.⁷

Intellectual property rights and food security technologies: which way for african women?

A few technologies have been transferred to farmers as they become available and efficacious. Many appropriate technologies still lie with innovators. The main problem with technology transfer in agriculture has had to do with the fact that they get transferred to men, who in Africa are not the primary food producers. Commercialization of agriculture involving new technologies has, therefore marginalized women further. It denies them the most productive land for food, production and transfers modern or appropriate technologies to men. This leaves women to continue with their old-fashioned drudgery on increasingly infertile and acreage-diminishing land.

“Patents” to protect intellectual property rights (IPRs) are justified as protection of and incentive to creativity. In return, society expects innovators to make their works available for the benefit of humanity. While society encourages creativity, it abhors monopoly. Consequently, the state, in granting IPRs, limits the rights granted to the inventor to a specific period of time.

As a concept, IPRs in themselves may not be a problem. What has become a contentious issue is the nature of the meaning and interpretation IPRs have taken in recent times, particularly with the introduction of Trade Related Intellectual Property Rights (TRIPs) at the World Trade Organization. TRIPs has expanded the concept of IPR beyond mechanical and literary products to include biological and agricultural products. This expansion has tended to marginalize weak developing countries like Kenya and impacted on agriculture and food security negatively.

Implications of IPR on Farmers in Kenya

Before the introduction of Plant Breeders’ Rights (PBRs), Kenya Agricultural Research Institute (KARI), as a public organization, was involved in breeding crop varieties that were exclusively treated as public goods. This has changed with the liberalization of the seed industry, which requires



farmers to pay royalties for the varieties that they purchase. Farmers now have to pay for varieties that they have been involved in nurturing instead of sharing benefits accruing from them.

By December 2001, about 541 applications had been received with 259 applications originating from Kenyan breeders. Most of the applications covered horticultural crops as opposed to key food security crops. More than half of the applications came from industrialized countries. These were mainly companies or individuals who wanted to protect certain varieties of the export market. In Kenya horticultural crops have replaced main food crops. PBRs are tailored towards strengthening commercial crops and not food crops like maize. The introduction of PBRs in Kenya's context can be described as a way of encouraging monoculture leading to erosion of genetic diversity and concentrating benefits of "new" varieties in the hands of

commercial companies, all at the expense of poor farmer. Farmers who depended on old varieties and recycling of seeds suffered and continue to suffer after PBRs were fully enforced in Kenya.⁸

Conclusion

It is clear from Kenya's experience, that reduction in maize productivity and access to markets is affecting the success of local farmers and raising problems of food security.

The fact is that the liberalization policies of the International Financial Institutions and the WTO threaten to convert Kenya into a long-term importer of food. Millions of small maize farmers across the country are seeing their livelihoods eroded due to a combination of inappropriate government and trade liberalization.

8 Ibid.





Floriculture in Colombia and Ecuador

Patricia Jaramillo and Nora Flem*

I. The US Market

Most of the cut flowers imported to the United States come from Colombia, Ecuador, and the Netherlands. These three countries combined account for 85% of all US flower imports. The US also imports tropical flowers and foliage for flower arrangements from Costa Rica and Guatemala. In 2004, cut flower imports to the US increased by 16%, reaching a total of US\$ 705.6 billion (Agricultural Marketing Resource Center). Europe, by contrast, imports most of its flowers from Africa, due to its geographical proximity.

US Cut Flower Imports (2001)

Colombia	52%
Ecuador	18%
Netherlands	12%
Mexico	5%
Canada	3%
Costa Rica	3%
Israel	1%
Chile	1%
Guatemala	1%
New Zealand	1%
Other	3%

Eighty-five percent of the cut flowers imported to the US enter the country tariff-free, under preferential trade programs. Seventy-five percent of these tariff-free imports come into the US under the Andean Trade Promotion and Drug Eradication Act (ATPDEA), which benefits Bolivia, Colombia, Ecuador, and Peru.

II. Development of the Floriculture Industry in Colombia and Ecuador

Floriculture is one of the most successful industries in Colombia's economy. In just 35 years of activity, Colombia

has become the world's second exporter of fresh cut flowers, accounting for 14% of all trade (the Netherlands rank first, with a 56% market share).

COLOMBIA

Roses 48 %
Carnations, Mini Carnations 24 %
Chrysanthemums 4 %
Other 24 %

Acreeage: 6,544 hectares, located in the Bogotá Savanna (85%) and Rionegro, Antioquia (12%).

98% of production is exported.

Value of exports

2004-05, in millions of US\$:

North America	\$596.61	85%
European Union	\$62.18	9%
Other countries	\$44.64	6%

Direct jobs: 94,271
Indirect jobs: 80,130
Women: 66%
(Asocolflores 2006)

At present, the capital invested in floriculture is primarily Colombian in origin. The international competitive advantages enjoyed by Colombian and Ecuadorian crops include: climate conditions of the cultivation areas; infrastructure conditions of the areas where the plantations are located; and geographical proximity to the US market. In Colombia, flower growers are associated in the employers' organization Asocolflores, which was created in 1973 with the aim of promoting Colombian flowers in the international market (Herrera, 2004).

In Ecuador, the trade association that represents flower growers is Expoflores. There are no precise figures available regarding production costs, but the optimal surface area for a crop to be cost-effective is calculated at 10 hectares. In addition, costs are dependant on the type of flower grown. In the case of roses, approximately seven persons

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are employed per hectare, while 15 to 20 people are needed to grow carnations (Repetto cited by Herrera 2004).

In Ecuador, the production of flowers for export began in 1983. The floriculture industry is primarily concentrated in the northern region of the province of Pichincha. During the first half of the 1990s flower production grew at an enormous pace, with an annual rate of more than 24% in average. After 1996, the average rates stood at approximately 18% (Mena 2004).

ECUADOR

Roses 61.78%
 Gypsophillias 10.45%
 Summer flowers 13.68%
 Carnations, Mini carnations 5.23%
 Tropical Flowers 4.7%
 Other 2.8%
 Acreage: 3.317 has
 (Expoflores 2004)
 71% of all flower exports go to the US:

United States	71,30%
Netherlands	8,55%
Russia	6,77%
Germany	1,67%
Italy	1,36%
Other	10,35%

Women workers: 50%
 Total companies: 382
 Companies with trade unions: 2

Tasks assigned to:

Women:

- Flower selection
- Classification
- Packing
- Flower arrangements

Men:

- Fumigating
- Construction
- Infrastructure installation

Both:

- Tending flower beds
- Plant cultivation

III. Multinational Corporations

Dole is the only US wholesaler with flower farms outside the United States. Until October, Dole controlled 20% of the flowers exported from Colombia. Dole has its own air transportation service, a 328,000 sq. ft. refrigerated warehouse in Miami for flower processing, and direct delivery of its products to retailers. In 2002, its income from the flower business totaled US\$174 million.

In November 2004, men and women workers from Dole’s “Splendor Flowers” plantation formed the independent trade union Sintrasplendor, with the support of Untraflores, an industry-wide trade union. Workers report that Dole has been waging an anti-union campaign ever since.

In October 2006, Dole announced that it would eliminate 30% of its operations in Colombia, closing down Splendor Flowers and Porcelain Flowers, as well as the two farms it owns in Ecuador. This decision will put more than 2,600 people out of work. Dole says it is due to international competition, which has brought down prices and demands greater productivity. But the decision seems to

also have something to do with Dole’s unwillingness to negotiate with Sintrasplendor. Closing down these farms will worsen the people’s food problem, as they will then be unemployed and will join the labor supply for the other crops, causing a drop in the wages offered by such crops.

This dramatic situation is confirmed in a January 2006 report prepared by Banco de la República, under the direction of Fernando Tenjo, which analyzes the industry’s recent performance based on a sample of 146 companies, that is, 70% of all floriculture companies. Of that number, 83 companies are sustaining losses, and most of these companies are the largest in size, the ones with the greatest export volumes, and the ones with the highest levels of investments in installations and equipment by volume of production. The more they export, the more losses they sustain. In 2003, this group of companies placed 130,000 tons abroad, the same volume as in 2004. In the first year they had zero profits, and in the second year they suffered a 30 billion pesos loss. The industry’s drop included a reduction in both operating income, profit margins, and gross and net profits, combined with an increase in direct and indirect costs. Not even an improved exchange rate scenario would make a considerable number of companies viable. (Suarez 2006)

According to analysts, both the government and ASO-COFLORES have been concealing the fact that Colombia’s floriculture industry is going through a profound and structural crisis, from which it will not be rescued by the FTA. There are three major factors behind this crisis: in the first place, an oversupply in the international market; (...) the second cause, a consequence of the first, is that unit prices for the industry’s products have been dropping in real terms. This situation is aggravated by currency revaluations, like the 5.6% peso revaluation in 2005, which has affected the industry’s income, as 90% is derived from foreign

Where China already has the largest production base in the world, reaching an acreage of 636,000 hectares in 2004 -a third of the world’s total and one hundred times more than Colombia’s-, with a value of 5.4 billion dollars -five times greater than Colombia’s-, and an annual volume of 9 billion fresh flowers. Some regions, such as Chengdu and Yunnan, which are export-oriented, are connected with the most important auctions in the Netherlands, and receive government support for strategy purposes and investors from Taiwan and South Korea. African countries such as Kenya and Zimbabwe are also behind this increase in global supply, and California and Hawaii have already suffered on account of it.

sales. The situation takes on dramatic proportions in those cases in which margins are so greatly reduced that they depend on such details as eliminating rose thorns to cut down freight costs. The third factor is the increase in costs, which consist of 50% labor and 25% specialized transportation and phytosanitary, drug and security controls, with inspectors being paid by the exporters. As the latter is practically a fixed cost, hopes are set on lowering the wages of the 94,000 laborers that make up the workforce, 60% of which is female. (Suarez, 2006)

IV. Workforce and Working Conditions

Herrera's 2004 study on the working conditions of female floriculture workers in Colombia revealed that employers prefer to hire women because they are more productive, careful and dedicated in flower cutting and selection tasks. However, the percentage of men employed in floriculture is on the rise, specially in Ecuador, possibly as a result of male unemployment in other industries, and/or because employers prefer to avoid paying benefits such as maternity leave.

The women hired are usually very young. According to a study by Korovkin, 66% of the workers surveyed in a floricultural community in Ecuador were aged 15 to 24 years (cited by Oxfam Chile 2004). Women applying for a job are often required to take a pregnancy test, an illegal but common practice in this sector.

Flower growing requires abundant labor, due to the impossibility of automating production stages. While from a national perspective the percentage of jobs generated is not significant, this crop is a major employer, specially for women. This sector is characterized by a flexible use of labor, determined by product harvesting needs, a factor that explains the high worker turnover and why in certain seasons of the year companies often cover shortages with mandatory overtime. Moreover, when there are imbalances in the labor market, women are the first to go (Díaz 1998).

There is a constant pressure on the process of production and during periods of high demand, for example, prior to Saint Valentine's Day, monetary incentives are used according to the levels of production in each crop. Permanent workers who fail to meet the national average are penalized, and those who top it are rewarded.

This activity has been a constant target of criticism because of its working conditions and its use of toxic pesticides. Numerous reports have spread around the world denouncing the problems caused by fumigating products and their effects on the health of men and women workers who handle these products without the necessary protective gear. In Ecuador, for example, research by Dr. Raúl Harari

found that floricultural companies use approximately 30 different chemicals, not counting fertilizers.²

Recent studies show that while there have been improvements in several aspects, there are still cases of small companies that do not provide their workers with safety equipment, and while the toxicity levels of agrochemicals have gone down, and with them their negative impact on health, more severe regulation and more efficient enforcement are necessary.

Priority ILO Conventions That Apply to the Floriculture Industry:

C81: Convention concerning Labour Inspection in Industry and Commerce, 1947

C98: Right to Organise and Collective Bargaining Convention, 1949

C111: Discrimination (Employment and Occupation) Convention, 1958

C182: Worst Forms of Child Labour Convention, 1999

C161: Occupational Health Services Convention, 1985

C170: Chemical Convention, 1990

C135: Workers' Representatives Convention, 1971

C155: Occupational Safety and Health Convention, 1981

Ratified by Colombia and Ecuador

Ratified by Colombia

Not ratified by these countries

Sexual harassment and violence in the flower farms is also a serious problem. A 2005 study revealed that more than 55% of the women working in flower plantations in Ecuador had been victims of some form of sexual harassment at work. This figure was greater among workers between the ages of 20 and 24 (71%). Nineteen percent were forced to have sex with a coworker or superior. Only 5% of the workers that were victims of sexual harassment reported such aggressions. Women fail to report incidents for several reasons: either because they are unaware of their legal rights, because they are threatened, or because they fear they will be fired. The plantations have no procedures in place to receive and respond to this type of reports (Mena and Proaño 2005).

In a study conducted in the year 2003 by Corporación Cactus, women workers declared that their income was insufficient to cover their needs. Twelve percent of these women work other jobs, such as cleaning houses, in order to supplement their salary, and they also resort to employee fund loans and to working overtime. The surveys conducted by Oxfam revealed that there is a difference of 7.7% between the income used for food and the money actually

2 The Oxfam survey found that all the women workers interviewed had suffered illnesses produced by exposure to agrochemicals (Oxfam Chile 2004).

required to satisfy this need, without even considering the basic market basket established by the National Statistics Office – DANE (Oxfam 2003, in Herrera 2004).

Recently, certain improvements have been seen in the precarious working conditions that have characterized this sector from the beginning. The factors that determined these improvements were: the industry’s having broken into international markets, which drove it to adopt minimum social standards for male and female workers; the conditions that had to be met to obtain international certification for the crops; the incorporation of codes of business conduct; and the global campaigns calling for improvements in this industry’s conditions (Herrera 2004).

Even when the minimum standards stipulated by law are met, the living conditions of male and female floriculture workers are still precarious. Moreover, the minimum wage set by law does not even cover half of the basic market basket established by DANE (Herrera 2004), so that from 2003 to 2004 the minimum wage’s purchasing power deteriorated, further aggravating the problem, in particular for the women working in flower production, who are for the most part heads of households with several children in their care.³

This situation is exacerbated by the product’s current marketing conditions, as factors such as currency revaluation, the problem of oversupply in international markets, and the new competition from emerging markets in Africa and Asia (specially China) make it difficult for companies to continue exporting.

Thus, the food problem affecting these families – for the most part from rural areas and headed by women – will worsen. It should be emphasized in this point that for the male and female workers in this economic activity food insecurity basically takes the form of a lack of access to food products and related services, such as health care, housing, recreation and education.

The above raises the need to investigate just how affected food security is, with case studies correlating temporary employment characteristics, levels of income, and



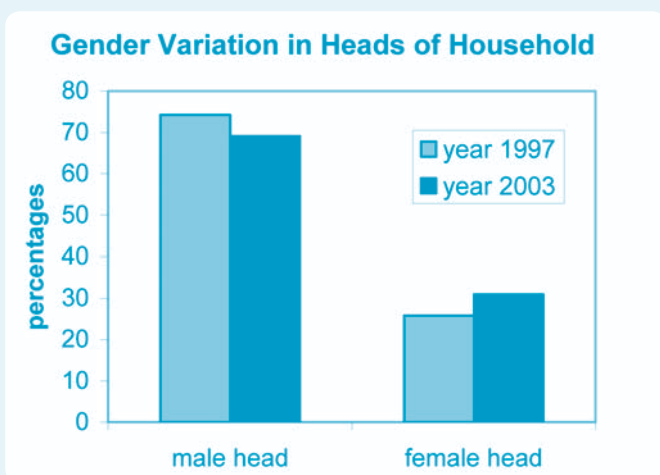
economic dependency figures, on the one hand, with food access of the workers employed in flower farms and their families, on the other.

V. Changes in Community and Family

Communities and family relations have experienced changes as a result of the expansion of the floriculture industry. Since the late 1990s, Ecuador has seen high rates of migration towards the floriculture region of Cayambe, primarily from the Ecuadorian coast or from Colombia. A study conducted in Cayambe-Tabacundo found that only 59% of the residents had been born there, compared to 90% in a similar (but not floricultural) community to the north (Oxfam Chile 2004). The population of Cayambe grew at an unprecedented pace, thus causing a rise in housing, land and lease costs. In addition, public services -such as electricity, water and garbage disposal- became inadequate. The author describes the community as being disorganized, disrupted by working days that prevent community members from engaging in the traditional activities and duties of indigenous communities. The long working hours also result in parents losing touch with and control over their children. (Mena 2004).

In Colombia, the number of women in flower growing activities who are heads of households is part of a more widespread phenomenon, and in some municipalities this trend has been increased as a result of the process of forced displacement. According to statistics from various human rights bodies, displaced populations are composed of women, girls, boys and elderly people. With the collaboration of UNDP, DANE performed a gender analysis of the data gathered by the quality of life surveys conducted from 1997 to 2003, focusing on heads of households, and came up with the following results:

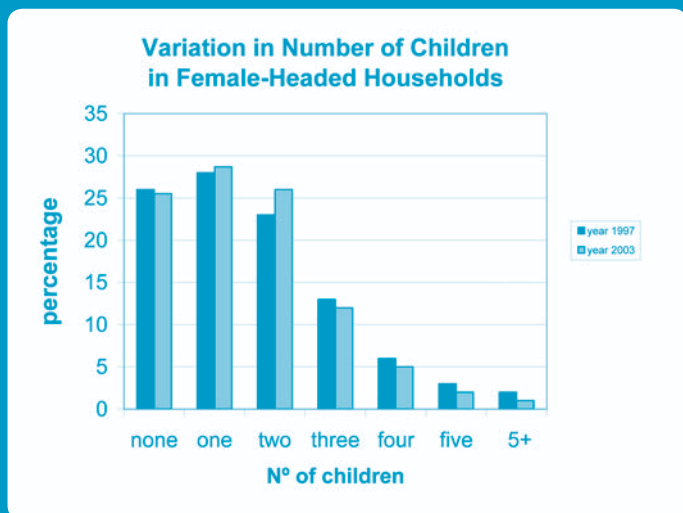
In the years studied, the number of households headed by women saw a significant increase, going from 25.8% of all homes in the year 1997, to 30.9% for the year 2003. As for male headed households, the percentage went down from 74.2% in 1997 to 69.1% in 2003.



³ Based on the national population and health survey.

The age group that experienced the least growth was the 26 to 40 year range. Most women that head households are over forty years of age, but this trend is going down. The analysis of the civil status of the women heads of households revealed that the predominant status in the year 2003 was widowed, with 30%, followed by separated and divorced women, with a combined 38%, and single women, with 15%, for a total of 81.6% of the households headed by women. In addition, DANE reported a considerable increase in the number of women heads of household without a partner, which went from 5.6% in 1997 to 27.8% in 2003, with rural women going from 7% to 19% and urban women from 5% to 30% between 1997 and 2003. The number of women without a partner and with children under the age of 18 also saw an upward trend over recent years:

As for household size, it was found that most households have 0 to 2 children, regardless of who heads it. Households with more than two children present a negative variation with respect to 1997. In the case of female-headed households, there has been an increase in the number of households with two children.



More recent data in this sense is provided by the 2005 National Survey on Population and Health, which highlights a growing trend in the feminization of heads of households. In 1995, 24% of all heads of household were women, in 2000 that figure had gone up to 28%, while in 2005 it had increased even further to 30% (Profamilia 2005:37).

Regarding the makeup of households, the data from periodic surveys indicates that, with respect to the year 2000, the number of children living with both parents dropped from 61% to 58%, while those living with only their mother increased from 27% to 30%, and those living with only their father remained stable at 3% (Profamilia 2005:37).



VI. Water and Natural Resources

Studies conducted regarding the effects of floriculture on the environment and water resources point to “the scarce government control over fumigations, water and soil use, environmental and labor conditions, compliance with environmental and occupational health legislation [which] have granted advantages to production at the expense of the natural environment and the population.” (POLO 2004:10)

The water used in these crops is drawn primarily from underground sources, by means of deep wells, thus causing a reduction in groundwater reserves. In this sense, the following is pointed out:

CAR⁴ statistics reveal that from 2001 to 2002 reserves in the Guadalupe aquifer dropped 17 meters, as compared to the reduction of only 3 meters of previous years. Other aquifers, such as Chicó and Balsillas, suffered a reduction of 12 and 10 meters respectively, as compared to the 8 and 3 meters they had dropped in previous years. Reserves plunged dramatically because the water drawn from them exceeds the water that is recovered through infiltration (El tiempo 2002, cited by POLO 2004: 34)

Water in floriculture is used in several processes: for irrigation, to prepare agrochemicals, and for cleaning, and for domestic needs, so that it is difficult to discriminate exactly how much water is used for each requirement. However, in formulating an environmental management program for the floriculture industry, POLO indicates that it is calculated that 9,125 hectares of flowers demand a volume of 4,380 liters/second, with a required flow of 4.38 cubic meters and an estimated annual volume of 136.2 million cubic meters. Eighty-four percent of the farms are supplied by groundwater and 13.3% by surface water. It is calculated that a total annual volume of 307.8 million cubic meters is necessary to cover agricultural acreage (pastures and crops) (CAR 1994, cited by POLO 2004:32).

In addition to using water, flower growing activities generate various kinds of wastewater, which contribute to contaminate surface water resources. Therefore, this same study indicates that overall the Bogotá Savanna is exert-

4 Regional Autonomous Corporation. Agency in charge of environmental management in the central area of the Bogotá and Cundinamarca region of Colombia.

ing enormous pressure on water resources, with growing competition for water use and increasing pollution from all kinds of discharges (POLO 2004:6)

In this context, the flower industry in the Bogotá Savanna and other regions of Colombia has had a negative

impact both on environmental conditions and on food production, as a result of crop displacement and soil contamination in neighboring fields. Therefore, it has a major effect on the quality of life of the population and on food security conditions.



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A fact sheet: Women in the Philippine rice industry

Jessica Reyes-Cantos and Riza Bernabe*



Overview of the rice industry

As in most countries in Asia, rice is the main food staple in the Philippines. Hence, discussions on policies related to food security inevitably revolve around rice self-sufficiency.¹ This is highly understandable in view of the fact that rice accounts for 19% of total household spending on food in 2000.² Moreover, rice contributes as much 65% and 45% of the population's caloric and protein intake respectively.³

Paddy production is an important source of livelihood and economic activity in rural areas. It accounts for 17% of the country's agricultural output from 2001-2005, and directly employs at least 4 million rice farmers.⁴ Of the 6 million women engaged in agriculture, 37.36%, or more than one third, are into rice farming.⁵ The rest of the women population in agriculture is in the following sectors: corn (26.81%), livestock (11.79%), coconut (6.75%), banana (1.95%), sugar (1.97%), other crops and services (13.22%) and in hunting and forestry (0.15%).⁶

Rice farming can also be found in all regions of the country. In fact, almost forty percent 40% of the country's total agricultural lands are planted to rice. The key rice producing regions are Central Luzon, (Autonomous Region of Mindanao) ARMM and Cagayan Valley⁷

Rice trade policy

The Philippines maintains a quantitative restriction (QR) on rice importation. The rice QR is the only import restriction measure under the Magna Carta of Small Farmers (Republic Act 7607 of 1992) that was not converted into tariffs, after the latter was amended by the Agricultural Tariffication Act (Republic Act 8178 of 1996). The country was able to secure an exemption from liberalization for the rice industry under Annex 5 of the Agreement on Agriculture (AoA). This exemption allowed the country to maintain import restrictions on the commodity even as it tariffied all other agricultural products in keeping with its liberalization commitment under the General Agreement on Tariffs and Trade (GATT).

During the past years, there have been pressures to liberalize the rice industry. The expiration of the exemption from tariffication under Annex 5 by 2004 raised questions on whether or not the Philippines should continue to maintain quantitative restrictions on rice importation. Also, international financing institutions like the Asian Development Bank (ADB) through its Grains Sector Development Program have made rice tariffication a conditionality for the release of loans.

However, rice farmers groups and NGOs launched a campaign that successfully thwarted initiatives to liberalize the rice sector. Rice farmers actively and effectively

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1 Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. When used in the context of developing countries however, food security is often associated with food self-sufficiency as these countries often do not have the capacity to earn foreign exchange to buy the food they need.

Food sovereignty, which was initially coined by Via Campesina in 1996, refers to the "right of peoples to define their own food and agriculture," in contrast to having food largely subject to international market forces.

2 Data from the Bureau of Agriculture and Statistics, based on the Family Income and Expenditure Survey (FIES) 2000

3 Data based on 2006 study by Bernabe and Montemayor on Special Products and Special Safeguard Mechanisms for Philippine Agricultural Products, sponsored by the International Center for Trade and Sustainable Development

4 Based on data from the Bureau of Agricultural Statistics, 2000-2005

5 Rural Women Statistics, Farm News and Views, Philippine Peasant Institute, 4th Quarter of 2002, based on data from the Bureau of Agricultural Statistics, Development Indicators, 2002

6 Ibid.

7 Selected Statistics, Bureau of Agricultural Statistics, 2005

participated in legislative and executive deliberations to oppose the tariffication of rice importation. In the end, they were able to influence Philippine government negotiators to seek an extension of its Annex 5 exemption in the WTO. Equally important, they were also able to pressure the government to forego the ADB loan and maintain the QR on rice importation.

Unfortunately, regional trade agreements such as the Association of South East Asian Nations (ASEAN) Free Trade Area – Common Effective Preferential Treatment (AFTA-CEPT) and the ASEAN-China Free Trade Area have laid down the groundwork for the liberalization of rice markets in the region. Though rice is generally treated as a highly sensitive product among ASEAN members, the trade agreements nevertheless provided for some opening up of the country’s domestic rice market to other rice exporting countries in the region. Under the AFTA-CEPT, the Philippines eventually removed rice import restrictions and adopted a 50% tariff on imports from ASEAN members in 2003. This runs counter to its official position in the WTO where the extension of rice QR was renegotiated.

Women in the Rice Value Chain

Filipino women play a very important role in the rice industry. They are active players and contributors especially in some phases of the rice value chain. There are five main segments in this chain. These are (1) accessing of inputs to production, (2) the actual rice production (3) marketing, assembling and trading of paddy yield (4) milling and (5) distribution through wholesale and retail markets. However, gender disaggregated data are available only for the first two phases.

Input access and generation

Capital Procurement and Credit

Women play a very important role in accessing inputs to rice production. A survey of women engaged in rice farming conducted by the Philippine Peasant Institute (PPI) showed that almost 70% of the women are directly involved in capital procurement.⁸ The survey also showed that in the rice sector, 94% of the women have borrowed money, mainly from informal moneylenders, small convenience or *sari-sari* stores, cooperatives, relatives and other sources to finance rice farming and to augment household expenses. Women borrow money more than men because they are the ones directly managing household and production expenses, and are thus under greater pressure to bridge resource gaps. However, the survey also showed that compared to men, only a small proportion of women (5%) accessed credit through formal financing institutions.

The issue of credit is very important as it is tied up to other segments in the value chain. In the Philippines, many moneylenders are also traders. Farmers pledge their

future harvest to moneylenders as payment for their loans. This limits their capability to choose better prices for their produce during the harvest season, and minimizes their gains from rice production.

Land ownership

Women farmers engaged in rice production are small-owner cultivators, tenants or farm-workers. Small owner-cultivators own their land by virtue of emancipation patents issued through land reform. However, most of the land titles of land owning households are in the name of male spouses, despite the fact that women play an important role in the production segment of the rice value chain. Based on data from the Department of Agrarian Reform, female agrarian reform beneficiaries (ARBs) account for 22% of the total number of beneficiaries in 2002. However, women’s involvement in agrarian related projects is greater compared to men, although they are not as active at the organizational level, especially in leadership positions such as in the Board of Directors (BOD). [See Table 1]

TABLE 1: STATUS OF GENDER AND DEVELOPMENT FOR DAR BENEFICIARIES, 2002

GAD Indicators	Female	Male
No. of ARBs	169,119	580,156
Organizational level		
Membership	120,527	217,645
Board of Directors	5,589	13,862
Committee	12,535	17,240
Project Participation	5,406	5,166
Local Governance Participation		
Barangay	4,409	11,715
Municipality	529	1,581
Provincial	912	375

Source: Rural Women Statistics, FNV 2002

Irrigation

In 2000, only 2.7 million hectares of the total 4 million hectares of land devoted to rice were irrigated. The balance (1.3 million hectares) remained rain-fed. Sixty percent (60%) of the irrigated areas are in Luzon, 26% are in Mindanao and 16% are in the Visayas. Available information on irrigation does not include gender-disaggregated data on the beneficiaries of irrigation services and facilities.

Government support

Most beneficiaries of government support are men farmers. On average, women farmers account for less than one-third of the total beneficiaries of government programs. The only exemption is in the case of credit delivery under the Agricultural Credit Policy Council where women account for almost half of the total number-beneficiaries. [See Table 2]

8 PPI surveyed 130 women rice farmers in the rice growing provinces of Nueva Ecija, Bulacan, Zambales, Pampanga, Bohol, Zamboanga del Norte and Sur and Lanao del Norte. The survey, which was conducted done in 2002 looked into the different economic and social problems faced by women farmers across different sectors in agriculture.

TABLE 2: BENEFICIARIES OF THE DEPARTMENT OF AGRICULTURE'S PROGRAMS IN THE RICE SECTOR BY SEX

Service Providers	Rice	
	Female	Male
Regional Field Units	420,942	1,110,405
Agriculture Training Institute	19,179	36,265
Agricultural Credit Policy Council	2,020	2,839
Bureau of Post Harvest and Research	1,240	3,273
Philippine Rice Research Institute	44,085	125,729
Total	487,466	1,278,511

Source: Rural Women Statistics, FNV 2002

Rice production

The results of the PPI survey further show that women are engaged in almost all areas of rice production. Women participation is particularly high in activities such as planting, weeding, input and fertilizer application, drying and sacking among others [See Table 3]

TABLE 3: WOMEN PARTICIPATION IN RICE FARMING

Activity	Women participation (%)
Capital procurement	69.23
Land clearing	31.54
Input application	56.92
Plowing by tractor	2.31
Fertilizer application	44.62
Planting	60.00
Weeding	49.23
Harvesting	50.00
Threshing	16.92
Winnowing	32.31
Transporting to house	17.00
Drying	46.15
Sacking	37.69
Storing	21.54
Transporting to market	24.62
Marketing	26.92
Hiring workers	56.15
Food preparation	80.00
Bringing the food to the field	83.08
Storing the seeds	58.46
Others	1.54

Source: Peasant Philippine Institute Survey 2002

Apart from actively participating in actual rice production, women are primarily responsible for activities such as food preparation, and bringing this to the rice field during mealtime. They are also highly involved in tasks such as the hiring of workers and the storing of seeds for future planting.

The PPI study pointed out that the women's scope of influence, contrary to common belief, extends beyond household maintenance to cover decisions relating to budget allocation for farm input expenses and productive activities.

Technology

The Philippine government promotes the use of hybrid rice technology to achieve the objective of increasing rice production. This technology was included in the country's rice production program as early as 1998, but it was only in 2002 that the Philippines launched its Hybrid Rice Commercialization Program.⁹

Farmers groups have raised issues regarding the sustainability of this technology. Apart from being heavily dependent on chemical-based inputs, men and women rice farmers have pointed out that the use of hybrid rice, which uses F1 or terminator seeds, strengthens the hold of multinational and private corporations on seed resources. In the Philippines, the private companies that produce hybrid rice include Monsanto, Aventis Crop Science, Bayer and SL Agritech.¹⁰ These companies' presence in the rice seed industry contributes to the marginalization of the role of farmers as seed growers and propagators, and endangers the role of women rice farmers as seed keepers. Storing seeds is one of the main tasks with high female participation in the rice production process.

Assembly and Trading

The rice supply chain study of the United Nations Development Programme (UNDP) and the National Economic Development Authority (NEDA) in 2005 lists two key players involved in the assembly and trading of paddy from the farm - paddy traders and the *viajeros* (literally, "those who shuttle"). Paddy traders buy palay directly from farmers. In most cases, these traders are also money-lenders (as stated above) who lend capital to rice farmers in exchange for future harvests. Hence, they are in a position to dictate prices having negotiated the palay sale even before the actual harvest. Paddy traders dominate this segment of the value chain.

Viajeros on the other hand go from one farm to another during the harvest season to procure palay and then sell these to rice millers.

The government's National Food Authority (NFA) also procures palay from the farmers with the objective of asserting a palay floor price and consequently improving farm-gate prices.¹¹ However, the NFA accounts for a small percentage of the activity in the assembly and trading segment, which is presently dominated mainly by the paddy traders and the *viajeros*.

At the moment, there are no gender specific data relating to rice assembly and trading.

9 Redona et al, Commercializing hybrid rice technology in the Philippines, 4th International Science Congress Website, 2004

10 Data from "Fiasco on the field - un update on hybrid rice in Asia", Grain Website, 2005 and from "Why go hybrid rice, from the Pinoy Farmers Internet Website", 2006

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