CONTENTS

Mexico

Vermicomposting Fits Needs Of A Developing Country

The authors review operational worm farms in Mexico as well as their impact on crops and soils.

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IMPOVERISHED agriculture and increasing population in Mexico have caused intense land conflicts and mass migration to cities. While the problem can be traced back for decades, more and more people — in and out of government — understand how critical the situation has become.

As far back as the early 1970s, the Mexican Government and local institutions began to promote organics recycling in rural regions as a way to restore fertility to soils. One method advocated was worm composting. However, villagers and peasants received the information skeptically as they are reluctant to change ancient habits and methods. What's more, government policies drift with every political change and no serious projects were developed. Raising worms for processing organic matter was considered far fetched — but the method was an easily accessible technology with low investment requirements. Personal initiatives would prove to be successful.

Today, there are more than 40 companies or individual farmers in 13 states of Mexico who are operating vermicomposting plants. Production capacities range from 0.3 to 4 tons/day for castings and humus. Prices range from U.S. $108 to $543/metric ton wholesale and up to U.S. $1.08/kilogram retail.

Manure is fed to worm beds at the vermicomposting site in Texcoco, located 20 miles from Mexico City. The project produces two tons/day of compost.

Examples Of Projects

In the town of San Fernando, Chiapas — the nation's second lowest income state, Onan Diaz was among several peasants who learned about earthworm composting from a social support program. After obtaining worms and producing compost, he applied the finished product on his small coffee plantation. Improvement was evident as increased blooms per plant and better coffee flavor differentiated his plantation from his neighbors. The ejidataros (land owners in the region) began to worm compost too. Soon compost was sold to neighboring parcelas (small crop areas). At the present time, Diaz teaches vermiculture to growers and wants to develop an "organic coffee" region. Similarly in the southern state of Oaxaca, the Chinanteca Women's Union of Indigenous Villages from Sierra de Lalana, began producing and selling worm compost — calling it guoo laa (black soil). At Capulhuac, a town 25 miles west of Mexico City noted for its lamb barbecue, the German International Cooperation Agency (GTZ) recommended vermicomposting for residuals from sheep slaughter. Because of a minimal budget, a skilled and resourceful person named Maria Sanchez — though untrained in vermicomposting — was able to make the project work. Mixing garden and food residuals produced competitive quality compost. Her worm harvesting method utilizes plastic sheets to cover the piles along with water saturation. "This makes the worms pile up on top and we collect them like spaghetti," comments Sanchez. Commercial-scale vermicomposting farms began in 1998, when Bernardo Fernandez, a civil engineer fond of horses, opened his two-acre "Lombricultura de Texcoco" facility, 20 miles east of Mexico City. The plant is semimechanically operated and produces two tons a day of worm compost which is sold to farmers, greenhouse owners and specialty garden shops.

Technical Assistance From Researchers

Vermicomposting has also increasingly awakened academic research interest. In May, 1994, the Mexican Society of Sanitary and Environmental Engineering in cooperation with the Soil Institute of Agriculture Ministry of Cuba organized the first International Vermicomposting course. The paper industry was also interested in this approach. Incremi, an environmental consulting company, was hired to conduct a study on worm processing of cellulose sludge from paper mills.

Recently Guadalajara University, Chapingo University and Metropolitan University held a number of worm farming courses on "Vermicomposting for Sus-

(Continued on page 69)

VERMICOMPOSTING FITS NEEDS

(Continued from page 64)

tainable Development" and "Worm Farming and Its Role On Organic Agriculture." Research programs include humus and worm production, yields and efficiency of different substrates (cooking wastes, diverse manure, fruit and crop wastes) including alternative uses of humus and its effects on foliage and fruits.

The following list describes some of the current vermicomposting studies at academic institutions in Mexico: Yield and efficiency of exhausted coffee pulp vermicomposting; Physicochemical and microbiological quality of vermicompost; Environmental implications of worm compost uses; Yield and worm production; and Alternative uses of humus, worms and vermicomposting. These studies are being conducted at Instituto de Ecología, A.C, Universidad Michoacana de San Nicolás de Hidalgo, Universidad Nacional Autónoma de México (UNAM), Universidad de Guadalajara (U. de G.), Universidad Autónoma Metropolitana Xochimilco (UAMX) and Universidad Autónoma de Chapingo (UACH).

Repairing "Damaged" Agriculture

Despite the lack of serious government support programs, several vermicomposting farms have operated successfully in Mexico since the late 1980s. As no big budgets are needed, vermicomposting plants are not dependent on local political decisions.

Worm compost could be part of the solution for "damaged" agriculture in poor regions of Mexico. Its use could slowly regenerate contaminated and impoverished soils and at the same time provide some income to rural communities. Worm farming in developing countries should be seen as a social support and an ecological defense tool. Legislation for efficient planning, operation and commercialization of compost must be passed.

These early experiences in Mexico, like probably other Latin American countries, show that vermicomposting has to be developed to each cultural condition.

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