SIXTEENTH CONGRESS OF THE)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

SENATE
S.B. No. 104

Introduced by Senator LOREN LEGARDA

EXPLANATORY NOTE

This bill seeks to spur the production, processing, marketing, and distribution of *malunggay* in suitable areas of the country in order to acquire the benefits of the exceptionally nutritious and productive but underutilized tropical crop locally known as *malunggay*.

Moringa oleifera Lamk, commonly known in the Philippines as "malunggay" belongs to an onogeneric family of shrubs and tree, *Moringaceae* and is considered to have its origin in Agra and Oudh, in the northwest region of India, south of the Himalayan Mountains. It is a fast growing, perennial tree which can reach a maximum height of 7-12 m and a diameter of 20-40 cm at chest height. It is cultivated throughout the Middle East, and in almost the whole tropical belt. It was introduced in Eastern Africa from India at the beginning of the 20th century. In Nicaragua, the Marango *(local name for Moringa oleifera)* was introduced in the 1920s as an ornamental plant and for use as a live fence.

Malunggay is one of the most useful tropical trees. The relative ease with which it propagates through both sexual and asexual means and its low demand for soil nutrients and water after being planted makes its production and management easy. The paper entitled *"The potential of Moringa Oleifera for Agricultural and Industrial Uses"* written by Foidl N., Makkar H.P.S. and Becker K. from Nicaragua, in 2001, outlines important uses of various parts of the plant. Among others, malunggay's young leaves are edible and are commonly cooked and eaten like spinach or used to make soups and salads. They are an exceptionally good source of provitamin A, vitamins B, and C, minerals (in particular iron), and the sulphur-containing amino acids methionine and cystine. The dry seeds can be ground to a powder and used for seasoning sauces. The roots from young plants can also be dried and ground for use as a hot seasoning base with a flavor similar to that of horseradish. This is why the Moringa tree has been given the name "Horseradish Tree" *(Delaveau and Boiteau, 1980).* The flowers can be eaten after being lightly blanched or raw as a tasty addition to salads.

For industrial purposes, the oil content of de-hulled seed (kernel) of malunggay is approximately 42%. The oil is brilliant yellow. It is used as a lubricant for fine machinery such as timepieces because it has little tendency to deteriorate and become rancid and sticky *(Ferrao and Ferrao, 1970; Ramachandran et al., 1980).* It is also useful as vegetable cooking oil. The oil is known for its capacity to absorb and retain volatile substances and is therefore valuable in the perfume industry for stabilizing scents. The free fatty acid content varies from 0.5 to 3%. Moringa seeds contain between 30-42 % oil and the press cake obtained as a by-product of the oil extraction process contains a very high level of protein.

Some of these proteins (approximately 1%) are active cationic polyelectrolytes, which neutralize the colloids in muddy or dirty water. This protein can therefore be used as a non-toxic natural polypeptide for sedimenting mineral particles and organics in the purification of drinking water, for cleaning vegetable oil, or for sedimenting fibers in the juice and beer industries.

The extract obtained from the leaves of Moringa in 80 % ethanol contains growth enhancing principles (i.e. hormones of the cytokinine type). The extract can be used in the form of a foliar spray to accelerate the growth of young plants, cause the plants to be firmer and more resistant to pests and disease, cause the plants to produce more and larger fruit and higher yield at harvest time. The extract produces an overall increase in yield of between 20-35 % based on data such as the stem diameter, number of nodules, number of axels, number of flower buds, and number of fruits per flower bud.

At Biomasa, a Technical University based in Nicaragua, studies have been conducted using the seeds from Moringa for the final treatment in wastewater treatment units. To avoid eutrophication of rivers or lakes, the seeds can be used to coagulate algae and remove them by sedimentation. Up to 98 % of the algae can be removed by this treatment. The treatment also reduces the oxygen demand of the water by approximately 70 % and its content of both phosphorous and nitrogen by 60 %. The algae recovered by sedimentation after drying and pulverization have a protein content of about 46 % and can be used as a protein supplement for cows, pigs, chickens and even shrimps thereby reducing the cost of feeding substantially. One hectare of wastewater in an oxidation lagoon in the tropics can produce up to 80 metric tons of dry algae in a year. For the final treatment of wastewater in a town of 10,000 inhabitants, approximately 960 kg of Moringa flour is required per day.

In the Philippines, aside from the abovementioned benefits that can be derived from cultivating malunggay for agricultural and industrial purposes, studies have been made that bolster the use of malunggay for medicinal purposes. According to the Department of Agriculture BioTechnology Program, malunggay leaves are good for headache, bleeding from a shallow cut, bacterial and fungal skin complaints, anti-inflammatory gastric ulcers and diarrhea, malnutrition. On the other hand, malunggay pods are dewormers, good for treating liver and spleen problems, pain of the joints, and malnutrition. Likewise, malunggay seeds treat arthritis, rheumatism, gout, cramp, STD, boils and urinary problems, and a relaxant for epilepsy. Seed producers can amass a net income of approximately ₱218,000 to ₱521,000 per hectare/year at ₱20/kg of seeds, if the malunggay trees are planted 2x2 or 3x3 meters apart. Leave producers can have an estimated income of ₱1.43 million per hectare/year at ₱5/kg of leaves. Overall, the malunggay cultivation for commercial use can generate an estimated 10,000 jobs/3,000 hectares for Filipinos.

So far, efforts have been launched for the development of package of technology using the Nicaraguan experience as model and of a biotechnology protocol for rapid propagation of malunggay. Likewise, Biotechnology Information and Organization Network (BIONet) for Malunggay in Laguna, Quezon, Negros Oriental, CARAGA, Tarlac, CAR, Region 3 and Ilocos Region and Malunggay nurseries and repositories in strategic locations have been established. There are also efforts to link up growers with market through contract to buy arrangements, and advocate the use of malunggay for government feeding and nutrition programs.

Despite these efforts, there is a need for legislation to institutionalize the production, processing, marketing, and distribution of malunggay through a sustainable framework for development. This bill seeks to do just that by tasking the Department of Agriculture, in consultation with the Department of Trade and Industry, Department of Environment and Natural Resources, farmer's group, local government units, and the private sector, to formulate a five-year Framework for Development that shall serve as guide to the formulation and implementation of plans, programs and projects for the production, marketing, processing and distribution of malunggay for food, medicinal, health, and commercial needs.

Moreover, this bill establishes a Malunggay Development Fund (MDF) to provide for the funding requirements for the production, marketing, and processing of malunggay, with an initial amount of One Billion Pesos (P1,000,000,000.00) to be taken from the existing budget of the Department of Agriculture.

Finally, this bill tasks the Department of Agriculture, in coordination with the Department of Environment and Natural Resources, and the municipal government concerned, to identify the broad areas suitable for the planting and propagation of malunggay, within six (6) months after the effectivity of this proposed measure.

In view of the benefits that will be gained by maximizing the yield and use of malunggay for agricultural, industrial, commercial and medicinal purposes, the immediate passage of this bill is earnestly requested.

LOREN LEGARDA
Senator

SIXTEENTH CONGRESS OF THE)
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Senate
Office of the Secretary

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RECEIVED BY:

SENATE

S.B. No. 104

Introduced by Senator LOREN LEGARDA

AN ACT
TO PROMOTE THE PRODUCTION, PROCESSING, MARKETING AND DISTRIBUTION OF MORINGA OLEIFERA LAMK, OTHERWISE KNOWN AS *MALUNGGAY*, MANDATING THE CREATION OF A FRAMEWORK FOR DEVELOPMENT PLAN, PROVIDING FUNDS THEREFOR, AND FOR OTHER PURPOSES

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

Section 1. ***Title.*** – This Act shall be known as the "**Malunggay Development Act of 2013.**"

Section 2. ***Declaration of Policy.*** – It is hereby declared the policy of the State to accelerate the growth and development of the rural areas, improve investment climate, competencies and efficiency of agribusiness, address the nutritional and health needs of our people, and promote the planting of malunggay as a source of livelihood, a means of attaining food security, and as an effective approach to poverty alleviation, through an all-out promotion of the production, processing, marketing, and distribution of malunggay in suitable areas of the country.

Section 3. ***Site Identification.*** – The Department of Agriculture, in coordination with the Department of Environment and Natural Resources, and the municipal government concerned, shall identify the broad areas suitable for the planting and propagation of malunggay, within six (6) months after the effectivity of this Act: *Provided,* That such site identification shall be reviewed at appropriate intervals to ensure consistency with the agrarian reform program and the national land use policy.

Section 4. ***Malunggay Framework for Development.*** – The Department of Agriculture, in consultation with the Department of Trade and Industry, Department of Environment and Natural Resources, farmer's group, local government units, and the private sector, shall formulate a five-year Framework for Development, to be validated and updated annually. Such Framework shall serve as guide to the formulation and implementation of plans, programs and projects for the production, marketing, processing and distribution of Malunggay for food, medicinal, health, and commercial needs, as envisioned in this Act. The Framework shall likewise provide for the following:

a. The Department of Agriculture and the Department of Trade and Industry, shall link-up agribusiness cooperatives directly with consumers cooperatives, agro-processing companies, or exporters to provide marketing outlets for products with malunggay component;

b. To ensure health and proper trading, the Department of Agriculture shall establish and enforce standards in grading, sampling and inspection, tests and analysis, specifications, nomenclature, units of measurement, code of practice and packaging, preservation, conservation and transportation of malunggay;

c. Technical support on research and extension, infrastructure development, financial and market information shall be provided by the Department of Agriculture, Department of Trade and Industry, Department of Science and Technology, Cooperative Development Authority, state universities and colleges and other relevant government agencies;

d. Access to post harvest facilities, storage and distribution/transport facilities of existing government agencies shall be facilitated. Assistance shall be given to qualified and viable farmers/growers cooperatives in the availment of soft loans or grants for the construction of post-harvest, processing and storage facilities;

e. The Department of Agriculture, in coordination with the state universities and colleges, the Department of Trade and Industry, and farmers

organizations shall make good seeds and materials readily available to farmers/farmers' cooperatives to ensure high yield and good quality of malunggay; and

f. The Department of Agriculture shall establish Malunggay Information Center in areas identified pursuant to Section 3 of this Act

Section 5. ***Malunggay Development Fund (MDF).*** – To provide for the funding requirements for the production, marketing, and processing of malunggay, there is hereby created a Malunggay Development Fund (MDF), with an initial amount of Five Hundred Million Pesos (P500,000,000.00) to be taken from the existing budget of the Department of Agriculture. Thereafter, the MDF shall be sourced from the amounts be appropriated in the General Appropriations Act in the year following its enactment into law. Other sources of funds, including but not limited to borrowings from local and international financial institutions, shall also be considered to further support the Fund.

Section 6. ***Inter-Agency Committee.*** – A Committee, composed of a representative from the Department of Agriculture, the Department of Agrarian Reform, the Department of Finance, the Bangko Sentral ng Pilipinas, the Land Bank of the Philippines, the Development Bank of the Philippines, the Cooperative Development Authority, the Department of Science and Technology, the Department of Trade and Industry, the Department of Environment and Natural Resources, and the Department of the Interior and Local Government and one (1) each from the small farmers and commercial producers sectors to be designated by the Secretary of Agriculture, shall formulate and prescribe, after public hearing and publication as required by law, the implementing rules and regulations in order to carry out the provisions of this Act. The representatives from the Department of Agriculture and the Department of Trade and Industry shall be the chairman and the vice-chairman, respectively, of the Committee.

The representatives from the government agencies must have a rank of at least an Assistant Secretary.

The Secretary of the Department of Agriculture shall report to both Houses of Congress on the status of the implementation of this Act bi-annually.

Section 7. ***Repealing Clause.*** — All laws or parts thereof, decrees, orders, rules and regulations inconsistent with the provisions of this Act are hereby repealed or modified accordingly: *Provided however,* That nothing in this Act shall be construed or applied as amending the CARL and other laws on agrarian reform.

Section 8. ***Separability Clause.*** — If any of the provisions of this Act is declared unconstitutional or invalid, other provisions hereby not affected thereby shall remain in full force and effect.

Section 9. ***Effectivity Clause.*** — This Act shall take effect immediately following its publication in a newspaper of general circulation.

Approved,