Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

SEVENTEENTH CONGRESS
First Regular Session

House Bill No. 3977

Introduced by Representative GLORIA MACAPAGAL ARROYO

AN ACT
PROMOTING THE USE OF AEROPONICS TECHNOLOGY TO BE APPLIED IN AGRICULTURAL PRODUCTION OF HIGH VALUE-ADDED CROPS AND VEGETABLE FARMING TO ADDRESS THE COUNTRY'S FOOD SECURITY CONCERNS AND JUDICIOUSLY UTILIZE SCARCE FERTILE LAND RESOURCES AND FOR OTHER PURPOSES

EXPLANATORY NOTE

The 1987 Constitution recognizes the special role of science and technology for national development and progress. Accordingly, the state is encouraged to give priority to scientific research and development as tools for the improvement of the lives and welfare of the general public.

One area where the State can devote more research and development is in the use of state-of-the-art technologies aimed at improving agricultural production and ensuring food security. Specifically, the adoption of aeroponics technology is widely perceived as an innovative measure to increase agricultural productivity.

Aeroponics is the process of growing plants in an air or mist environment without the use of soil or an aggregate medium. Aeroponic culture differs from both hydroponics and in-vitro (plant tissue culture) growing. Unlike hydroponics, which uses water as a growing medium and essential minerals to sustain plant growth, aeroponics is done without a growing medium.

All over the world, aeroponic growing is considered to be safe and ecologically friendly for producing natural, healthy plants and crops. The main ecological advantage of aeroponics is the conservation of water and energy. When compared to hydroponics, aeroponics offers lower water and energy inputs per square meter of growing area.

Plants and agricultural crops grown using aeroponics spend 99.98% of their time in air and 0.02% in direct contact with hydro-atomized nutrient solution. The time spent without water allows the roots to capture oxygen more efficiently. Furthermore, the hydro-atomized mist also significantly contributes to the effective oxygenation of the roots. Aeroponics allows more control of the environment around the root zone, unlike other plant growth systems, the plant

roots are not constantly surrounded by some medium (for example, with hydroponics, where the roots are constantly immersed in water).

Aeroponic systems are more cost effective than other systems. Because of the reduced volume of solution input, less water and less nutrients are needed in the system at any given time compared to other nutrient delivery systems. The need for substrates is also eliminated, as is the need for many moving parts, resulting in lowered manufacturing cost and reduced maintenance costs.

With aeroponics, the deleterious effects of seed stocks that are infected with pathogens can be minimized due to the separation of the plants and the lack of shared growth matrix. In addition, due to the enclosed, controlled environment, aeroponics can be an ideal growth system in which to grow seed stocks that are pathogen-free. The enclosing of the growth chamber, in addition to the isolation of the plants from each other helps to both prevent initial contamination from pathogens introduced from the external environment and minimize the spread from one plant to others of any pathogens that may exist.

This proposed measure seeks to promote the use of aeroponics technology in agricultural production of high value-added crops and vegetable to further increase volume of agricultural production and ensure food security.

In view of the foregoing, approval of this bill is earnestly requested.

GLORIA MACAPAGAL ARROYO
2nd District, Pampanga

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

SECTION 1. *Short Title.* – This Act shall be known as the "Aeroponics Technology in Agricultural Production Act of 2016."

SECTION 2. *Declaration of Policy.* – It is hereby declared to be the policy of the State to reaffirm the fundamental right of every person to food security. The attainment of self-sufficiency in the field of food production is therefore adopted as a primary State policy. For this purpose, key reforms for the advancement of, and support to agricultural advancement in technology adaptation are hereby promoted in order to ensure the food security of the country.

Furthermore, the State commits itself to the adoption of state-of-the art technologies and the active development of modern, appropriate and cost-effective and environmentally safe agricultural technology in order to ensure and provide food security.

SECTION 3. *Definition of Terms.* – For purposes of this Act, the term *"Aeroponics"* shall refer to the process of growing vegetation in an air or mist environment without the use of soil or an aggregate medium. Aeroponic growing is considered to be safe and ecologically friendly for producing natural, healthy plants and crops.

SECTION 4. *Use of Aeroponics Technology.* – The Department of Agriculture (DA) is hereby mandated to promote the use of aeroponics agriculture as an instrument to further improve the production of high-value added crops and vegetables in the country and address food security concerns.

Idle government lands owned by either national or local governments or available land resources in state universities and colleges shall be considered for growing crops and vegetables using aeroponics agriculture.

SECTION 5. *Comprehensive Research on Aeroponics Technology Applied in Agricultural Production.* – For purposes of this Act, the Secretary of the Department of Agriculture (DA) is hereby mandated to conduct a comprehensive research and information drive on aeroponics technology applied in agricultural production.

The DA is further enjoined to support research activities aimed at expanding the knowledge and understanding of aeroponics technology and to invest in advance technology research in order to adopt state-of-the-art technologies to promote agricultural production in our high value-added crops and vegetables.

SECTION 6. *Inclusion of Aeroponics Technology in Agricultural Training.* – Aeroponics technology as used in agricultural production shall be integrated in the academic curriculum for secondary and tertiary level students of both public and private academic institutions studying courses on Agriculture, Practical Arts, Home Economics and/or other subjects related to agriculture.

The Department of Education (DepEd), in coordination with the Commission on Higher Education (CHED), shall promulgate the necessary rules and regulations for the implementation of this section within six (6) months from the date of effectivity hereof.

SECTION 7. *Appropriation.* – The amount necessary to carry out the provisions of this Act shall be included and incorporated in the annual general appropriations of the Department of Agriculture (DA), Department of Education (DepEd) and Commission on Higher Education (CHED).

SECTION 8. *Implementing Rules and Regulations (IRR).* – Within six (6) months from the effectivity of this Act, the DA, in consultation with the Department of Science and Technology (DOST), shall promulgate the necessary implementing rules and regulations to implement the provisions of this Act.

SECTION 9. *Separability Clause.* – If any provision or part hereof is held invalid or unconstitutional, the remainder of the law or the provision not otherwise affected shall remain valid and subsisting.

SECTION 10. *Repealing Clause.* – Any law, presidential decree OF issuance, executive order, letter of instruction, administrative order, rule or regulation contrary to or inconsistent with the provision of this act is hereby repealed, modified or amended accordingly.

SECTION 11. *Effectivity Clause.* – This Act shall take effect fifteen (15) days from the date of its complete publication in the Official Gazette or in at least two (2) newspapers of general circulation.

Approved,