

7. Hang the EPP plants in partial shade or full sunlight depending on the plant's requirements. Generally, plants should have at least 2 hours of full sunlight.
8. To control pest, submerge the whole plant in a pail of clean water for 10–20 minutes. Do not use pesticide.
9. When the water in the reserve (bottom half part of the plastic bottle) is near empty, water the plants by dipping them into a pail of water or sprinkling them with water until the bottom part is filled.

Using the Compost Soil Extract (CSE)

1. Shake and dilute CSE with tap water: 5 tablespoons of CSE per 1 L of water. The cap of the bottle of CSE can be used in place of tablespoon.
2. Water the plant with one small glass (100 mL) of the diluted solution.
3. Fertilize plants once a week only.

Plants That Can Be Grown Using EPP Technology

Vegetables	Herbs	Ornamentals
lettuce, pechay, mustard, tomato, eggplant, ampalaya, okra, ginger, beans, kangkong, camote tops, saluyot, spring onion, hot pepper, sweet pepper, Chinese celery, cucumber, spinach	basil, mint, parsely, sage, rosemary, thyme, wansoy (coriander), Kaffir lime, tarragon, stevia, gotu kola, oregano, gynura	Euphorbia, daisy, Dracaena Florida Beauty, impatiens, cactus

Benefits

With EPP technology, families are assured of healthy organic produce. The vegetables, which are now highly priced in the market, become available free of cost for household consumption. Extra harvests can be sold to neighbors fresh or these can be processed further for additional income.

EPP contributes to community programs on waste management as it uses non-biodegradable plastic bottles as containers. This significantly reduces the problem on urban landfills. The more the urban gardens there are, the lesser would be the air pollution in the metropolis.

Pricing

Unit Price	
1 EPP (plastic bottle + potting medium inside)	P20.00
1 CSE (320 mL)	P20.00
1 CSE (500 mL)	P30.00
1 packet of potting medium (750 cm ³)	P10.00
EPP Triplet	
3 EPPs + 1 bottle CSE (320 mL)	P80.00

Users of EPP technology include local government units, private individuals, households, and small-scale entrepreneurs from other urban and suburban areas.

Business Opportunity

A feasibility study shows that it is viable to establish a business on EPP production. For a 750-m² production area, initial investment requirement is P2.5 million for use over a 6-month pre-operating period to finance fixed asset acquisitions, start up costs, and working capital. Investment can come from debt and equity.

The study further shows that the investment can be recovered in 3.98 years. The Net Present Value based on a 5-year cash flow projection is P8,090,480. Internal Rate of Return is 43.36%. Moreover, the five year financial projection shows that sales will increase from P1.8 million in Year 1 to P10 million in Year 5. These translate into gross profit of P6 million and net income of P1.5 million in Year 5.

Source: Deblois, P.J.; Dy, D.C.; Estomo, M.C.A.; Raborar, G.F. P. University of the Philippines Diliman, 2010.

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Urban Gardening Using EPP Technology



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**Philippine Council for Agriculture,
Aquatic and Natural Resources Research
and Development (PCAARRD)**
Department of Science and Technology (DOST)

A healthy and environment-friendly way of growing pesticide-free and organic-based crops

No matter how little space we have or how congested the place we live in, gardening is possible, especially if crops to be grown are vegetables, herbs, and ornamentals. Now, there is an easy and affordable way of growing these crops right in the comfort of everyone's homes.

The Enriched Potting Preparation (EPP) technology eliminates the need for adequate spaces for producing crops. It provides urban families with healthy and pesticide-free vegetables such as lettuce, kangkong, and tomato. It allows growing of herbs such as basil, oregano, and rosemary for food seasoning, health, and medicine. It enables young and old to enjoy the beauty of ornamentals such as Euphorbia, cactus, and daisy in the garden. Further, EPP contributes in waste reduction and recycling efforts of the community as it uses discarded non-biodegradable plastic bottles as containers.

Features

Designed to provide all the plant's nutritional needs, EPP has three interrelated components: container, potting medium, and compost soil extract (CSE) fertilizer. The container is a recyclable plastic soft drink bottle with holes that ensure proper soil aeration and watering. The organic potting or growing medium is porous, nutrient-rich, and free of toxic elements, and the CSE serves as fertilizer complete with nutrients to sustain several cropping cycles in a year.



Creative Packaging. The EPP is designed to give plants balanced proportion of air, water, and nutrients. The technology uses 1.5 liters (L) plastic soft drink bottles cut in half as containers. Both the top and half parts have small holes on the sides for aeration and drainage of excess water. The position of the holes has been scientifically studied and determined. The top half (with bottle cap) is used as vessel for the potting medium. The bottom half is used to collect and reserve excess water for plant's reuse.

Toxic-Free. The potting medium is composed of fertile topsoil, well-decomposed coconut coir dust, and compost. It is free from harmful elements such as lead, cadmium, or mercury.

Nutrient-Rich. The organic-based CSE serves as the plant's fertilizer. It provides all the essential nutrients needed by plants when diluted and watered to the pot. It is extracted from a mixture of compost and fertile topsoil enriched with dolomitic lime and phosphate rock. The complete nutrients from CSE ensures frequent and bountiful yield. Leafy vegetables such as lettuce, pechay, and mustard can be grown seven cycles a year. CSE comes in liquid form contained in a 250-mL plastic bottle.

Less Maintenance. Watering in EPP technology is minimal, just once a week for seedlings and twice or thrice a week for mature plants. Plants still absorb the excess water in the reserve. CSE is diluted with water applied during watering. Removing weeds is done only when necessary. EPPs can be hung or set to stand. They are moveable and easy to transport during heavy rains or too much heat.

Procedure in Transplanting Seedlings

1. Place the potting medium (750 cubic centimeters) in the vessel (the inverted top part of the bottle).
2. Transplant the seedling and spray water on it to ensure good contact between the roots and the soil.
3. Using the bottom half of the bottle, cover the newly transplanted seedling to protect it from pests, strong winds, and rain.
4. Dip the EPP vessel in the water to fully moisten the potting medium.
5. Drain excess water and allow air to come in, then hang the vessel.
6. When seedlings are grown, remove the cover and insert the vessel into the bottom half of the bottle, then water the plant.

