

## CLEAN AIR – IN THE HOUSE AS WELL AS OUTDOORS

To quote Diane Relf, Extension Specialist, Environmental Horticulture, VA Tech, “Plants do a lot for people...they clean the atmosphere, modify climate, abate noise, inhibit glare and control erosion. In addition, many are lovely to the eye and tasty to eat.”

Plants clean the atmosphere in the following ways:

- Plants manufacture oxygen through photosynthesis, thus diluting the polluted air.
- Moisture from the plant traps airborne particles and acts as a filter for some pollutants.
- Hairy leaves and stems of many plants trap airborne particles until washed away.

Plants modify climate in these ways:

- Plants give off moisture; a mature apple tree gives off 300 gallons of water per day, thus raising the humidity level on dry days.
- The canopy of a plant tends to prevent moisture-laden air from moving away from the plant. Moist air is more difficult to heat and so helps with cooling.
- Leaves, twigs and branches absorb part of the light radiation, transmit a smaller portion and reflect the rest reducing glare.

At the Department of Horticulture and Landscape Architecture, Washington State University, a small study was conducted concerning the effect of particulate matter and humidity in a computer lab. The study showed that plants caused a reduction in particulate matter and a small rise in the humidity in the lab. Plants are used indoors and outside to help with noise abatement. Plant parts break up sound waves causing a change of direction and reduction of intensity of the sound waves. In England, a study showed that house plants could reduce the noise level as much as 5 decibels.

Air pollution is usually considered an outdoor problem. However, when environmentalists defined “Sick Building Syndrome”, air pollution inside buildings and homes became a subject for research. NASA and the Associated Landscape Contractors of America conducted a two-year study that suggests that houseplants do more than have “just another pretty face”. NASA research on indoor plants has found that living plants are so efficient at absorbing contaminants in the air that some will be launched into space as part of the biological life support system aboard future orbiting space stations. This study, along with others conducted by Dr. Bill Wolverton (formerly with NASA), suggests that plants can help absorb some of the common pollutants that are present in buildings and homes. Three of the most common pollutants inside structures are formaldehyde, benzene and carbon monoxide. The sources of benzene are inks, oils, paints, plastics, rubber, dye, detergents, gasoline, tobacco smoke, and synthetic fibers. The sources of formaldehyde are foam insulation, plywood, particle board, pressed wood products, plastic grocery bags, wax paper, facial tissue, paper towels, cigarette smoke, natural gas and kerosene, new synthetic carpets and new furniture made from pressed wood.

The Virginia Resource-Use Education Council on their web site [www.vanaturally.org/air.html](http://www.vanaturally.org/air.html) lists a table of common pollutants, side effects, sources and pollution-fighting plants. Some of the recommended plants are listed below.

**Top house plants effective in removing formaldehyde, benzene, and carbon monoxide from the air**

| <b>Common Name</b>     | <b>Scientific Name</b>           |
|------------------------|----------------------------------|
| Bamboo Palm            | <i>Chamaedorea Seifritzii</i>    |
| Chinese Evergreen      | <i>Aglaonema Modestum</i>        |
| English Ivy            | <i>Hedera Helix</i>              |
| Gerbera Daisy          | <i>Gerbera Jamesonii</i>         |
| Janet Craig            | <i>Dracaena "Janet Craig"</i>    |
| Marginata              | <i>Dracaena Marginata</i>        |
| Mass cane/Corn Plant   | <i>Dracaena Massangeana</i>      |
| Mother-in-Law's Tongue | <i>Sansevieria Laurentii</i>     |
| Pot Mum                | <i>Chrysanthemum Morifolium</i>  |
| Peace Lily             | <i>Spathiphyllum "Mauna Loa"</i> |
| Warneckii              | <i>Dracaena "Warneckii"</i>      |
| Boston Fern            | <i>Nephrolepis exaltata</i>      |

While they will not take care of all the air pollution, house plants do help to improve the air quality in the home, and give the avid gardener a chance to "play in the dirt" during those times when it is too cold or too rainy to get in the garden.

For more information on houseplants or other gardening practices contact the Chesapeake Master Gardeners located in the Chesapeake Office of Virginia Cooperative Extension, 310 Shea Drive in the Chesapeake Municipal Center off of Cedar Road. Contact us at the Chesapeake Agriculture Office, phone number 382-6348 or by e-mail at [gardener@agri.city.chesapeake.va.us](mailto:gardener@agri.city.chesapeake.va.us). We will gladly provide you with the information you seek.

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