

THE JEAN PAIN METHOD

By BRUCE FULFORD

In 1981 Bruce attended a two week workshop in Belgium on the work of Jean Pain, pioneer French researcher into biological energy usage.

A two week workshop on the brushwood energy and composting methods of French researcher Jean Pain was attended by 35 participants from Africa, Europe, Great Britain, and North and South America. The six representatives of African nations were funded by the U.N.'s Food and Agriculture Organization.

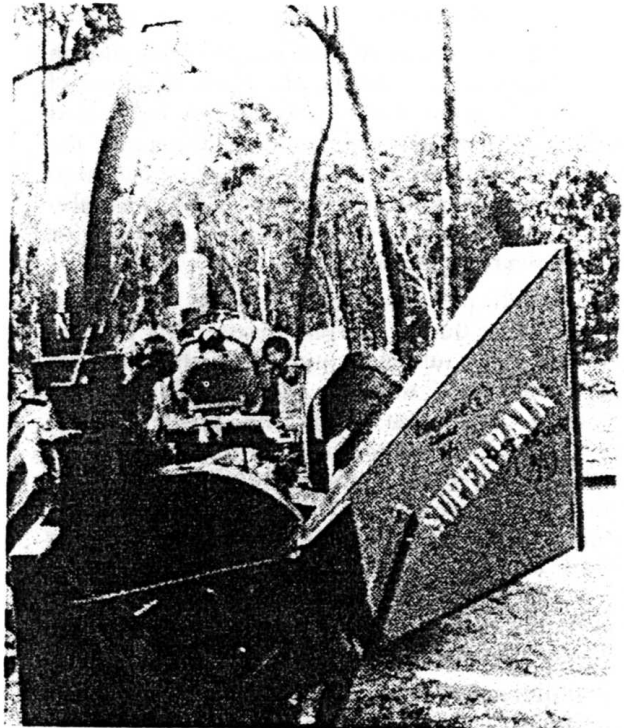
The Jean Pain method uses green brush and tree prunings (chipped, soaked, and stacked in piles weighing up to 200 tons) to generate hot water, methane, and create soil in large quantities where there are only trees or brush to provide organic matter.

Pain developed his methods after a lifetime of observation of the natural world. He saw man's role as either destroyer or preserver of the planet and that by learning from and cooperating with nature, we can live in a permanently balanced and healthy lifestyle.

Jean Pain lived in Provence, France, a hot and dry Mediterranean climate, where thousands of years of poor soil conservation left little soil and forests of scrub pine and brush, which became tinder for devastating fires almost every summer. He discovered that by thinning the small branches and brush before they became dry and flammable he reduced the danger of fire and that he could compost this brushwood to rebuild the lost soil that is essential to a healthy environment.

Pain also developed methods of extracting thermal energy and biogas (methane) from this green brushwood, providing gas for cooking and transportation and hot water for house heat and bath water.

The workshop was organized by the Comite Jean Pain and was taught by Jean Pain's nephew, Etienne Bonvalet. The workshop covered all aspects of the theory and practice of producing compost energy from green brushwood, including forest management planning, equipment and labour requirements, pay-back periods, gas and hot water production, finished compost value, and applications for industry and agriculture.



Tractor driven Jean Pain shredder. (Photo, Neil Druce)

A tour of several sites in Brussels using this method, exhibited some of the problems and solutions encountered in the course of experimentation in a variety of situations. The classroom sessions of the workshop were held at the University of Brussels and the practical sessions were held every afternoon in Londerzeel, where the research site and gardens are located.

Perhaps the most remarkable aspect of Jean Pain's method is the fact that these piles of chipped brush attain temperatures of 140-150 degrees with no additional nitrogen source, which most composters have come to believe necessary to break down concentrated lignins in wood fibres.

What makes this possible is the use of green brushwood chipped, or preferably slivered, to a thickness of about an eighth of an inch, which is then soaked for 24 to 48 hours and assembled in piles no more than three metres in height. The coarseness of the chips provides a pile structure that permits good composting without forced aeration.

The maximum thickness of a quarter inch allows for penetration of the water and air necessary for bacteria to biodegrade the woodchips. The maximum height of three metres assures the airspaces do not become

too compacted, resulting in the lower portion of the pile becoming anaerobic.

For heat exchange, Pain's research at the test site in Londerzeel, Belgium showed high-density PVC tubing to be superior to copper or other materials tested in cost effectiveness and overall performance.

PVC is far less expensive than copper, and, though copper conducts heat better, the physical nature of compost is such that if heat is rapidly "wicked" out of the area immediately surrounding the pipe, the ambient temperature of the pile cannot be passed to the water travelling through the pipe. Copper has also proved to be more susceptible to chemical or bacterial degradation than PVC.

PVC is easily punctured by pitchforks, so caution must be taken during the pile disassembly process. However, if the tubing is punctured, the holes are easily "soldered" with a special teflon coated "soldering iron" that melts the plastic without sticking to it. The process is used to join segments together and to eliminate the many joints and sleeved unions with hose clamps that would rust in the compost pile. Experimental 'spot welded' tubes hooked in series were installed at the workshop. These can slide out of the pile easily prior to disassembly, to eliminate the danger of puncture. Hose clamps are located on the outside of the pile.

Several different "broyeurs" (chippers) were used to chip the brush. The brush had been brought to the site by local landscapers who do not have to pay a fee to dump trees and brush at this site, as they would at the dump. Some brush was also cut from the privet hedges, willows and poplars - all fast growing "coppicing" trees at the site that provide large amounts of biomass rapidly.

One major point of Jean Pain's method is that the finished compost is a balanced, complete food that is ideal for plants. The product tests out to be lower in nitrogen than many composts using manures and high nitrogen solutions, but the plants grown in this lower nitrogen compost are of a perfectly balanced composition.

The gardens in Londerzeel seem incredibly pest free, healthy and productive. This is a dramatic change from the hard-packed poor soil that was there five years ago.

Because the workshop was attended by people who live in a wide range of climates - Austria to the deserts of Senegal, to the jungles of equatorial Africa - these methods need to be adapted for each particular climatic situation. A joint project is now underway in Tunisia with the help of the Belgian government and Comite Jean Pain to set up a composting operation of this method. It is hoped that the resulting compost will provide the basis for expanding the green-belt region. The reforestation of the desert through the creation of soil by composting brushwood may be one solution to the spreading famine created by the desertification of productive lands.

The book *Methods of Jean Pain - Another Kind of Garden* has sold more than 70,000 copies without advertising. The proceeds are used to fund further research, workshops and to provide more literature. Pain's widow, Ida, plans to continue the work and publication of the book, now printed in five languages.

Jean Pain died July 30, 1981, the last day of the workshop. He was fifty years of age. Pain said that he felt that this year there would be an "explosion" of the methods which he had developed in the last 17 years. We deeply mourn the loss of an inspirational force and person.

The Comite Jean Pain receives mail daily from all over the world asking about this method of balancing agriculture, energy and forest management. The BioThermal Energy Centre also provides information on this method. We carry Jean Pain's book which sells for \$12 postpaid. The Centre will offer slide shows, films, and speaking engagements on Jean Pain's methods and other aspects of BioThermal Energy in the future. Please write for more information.

* Bruce Fulford is coordinator of the Biothermal Energy Centre, Portland, Maine, U.S.A.

COMMENT

The Jean Pain Method is very well suited for all areas which have a plentiful supply of excess shrubbery. (This would exclude most arid areas.) It should make it possible to turn a firehazard or a weed into a valuable resource.