

Environment

Researchers claim soil can digest industrial waste

Provided by the University of Guelph's Ontario Agricultural College (OAC) Dr. Rob McLaughlin, dean.

Intensely managed soil can digest a surprising amount of organic industrial waste.

That's what University of Guelph soil scientists have discovered after a three-year "land-farming" project involving oily carbon-based waste from industries near Sarnia's Chemical Valley.

In field tests near Sarnia and in Guelph laboratories, a team led by land resource scientist Paul Voroney has determined that methodical management can double the speed of waste breakdown at land treatment sites.

Although a variety of factors is involved in the breakdown of waste, this research suggests that provincial guidelines governing the amount of oily waste that can be applied to a treatment site could be increased by 50 per cent, providing the site is properly managed.

Land farming uses the living microbes found naturally in soil to treat organic waste material in

a cost-effective manner. The soil microbes consume the complex organic mixture found in oily industrial waste, converting it into a dark, usable soil and into simple, harmless materials, like water and carbon dioxide.

Typical land-farm sites are about five acres. "Small means controlled, well monitored and managed," says Voroney.

Sites are usually located near refineries and drained to prevent the hazard of leaking waste. After a site expires, the land can be used for other purposes such as a park or sports field.

Industries find land farming attractive because it isn't costly (\$20 a ton) compared with chemical waste incineration (\$100 to \$200 a ton) or mixing the waste with cement and burying it at a landfill site (\$50 to \$100 a ton). But because of the relative newness of this form of waste disposal, industries have not known how to best manage land-treatment sites.

Voroney and his team set out to change that. Conventionally, waste is simply applied to a treatment site's soil surface about once a week during the 20-week

land farming season and mechanically worked in at that time. But the researchers intervened by spreading fertilizer on the treated site.

Fertilizer speeds the breakdown process by supplying the necessary nutrients for microbe growth - mainly nitrogen and phosphorus.

In addition, they reduced the

frequency of application by 60 per cent, which allowed them to increase the volume because there was more time for soil-management techniques such as tilling, monitoring soil nutrient levels and adjusting moisture content between applications.

"These strategies made the site able to break down more waste," says Voroney.

This research is sponsored by the Institute for Chemical Science and Technology, which aims to enhance the international competitiveness of the Canadian chemical industry and the international contributions of Canadian chemical research by combining the skills and resources of industry, universities and government agencies.

Guelph conservation conference has historical roots

During a time of deep environmental concern, delegates to this conference will look back to the original Guelph Conference of 1941, held 50 years ago, and ahead to the next 50 years of conservation in Ontario. Guelph Conference '91 will be held on May 23 at the University of Guelph.

Leading conservationists who met at the Guelph Conference of 1941 laid the foundation for much of the management of Ontario's natural resources during the last 50 years, including the formation of the conservation authorities of Ontario.

Delegates to the 1941 Conference wanted to take action to reduce the effects of flooding, erosion, and water pollution in Ontario. Recognizing that

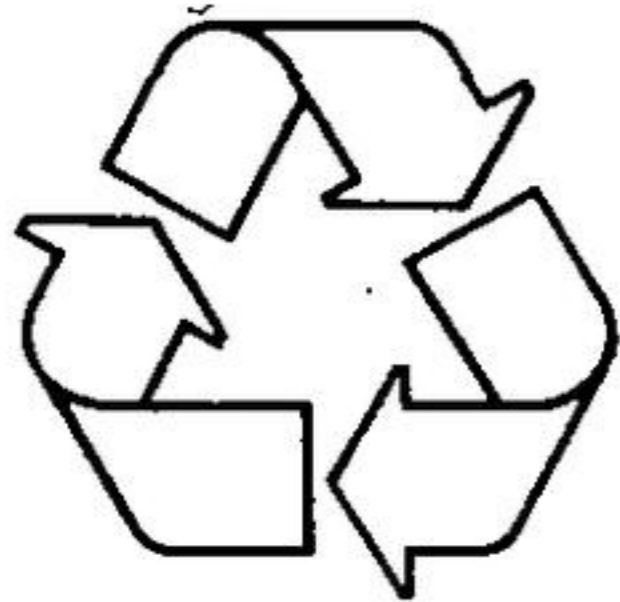
reforestation, wildlife management, soil utilization and water and erosion control are integrated, the delegates recommended conservation planning on a provincial scale and action on a watershed basis.

Today's conservation authorities work to carry out the conservation activity that was strongly recommended at the original conference under the phrase "integrated resource management". The Province of Ontario is the only province in Canada that has such an extensive system of conservation authorities. The 1941 Guelph Conference and the conservation authorities that resulted from it were two of the most important conservation movements in

Canadian history. Delegates to the original conference included citizens, academics, senior public servants and environmental action groups. Two of these groups, the Federation of Ontario Naturalists and the Ontario Federation of Anglers and Hunters, will participate in this year's conference.

The conference is sponsored by the Association of Conservation Authorities of Ontario. The conference agenda includes: a historical perspective, the state of Ontario's natural resources, the municipal perspective, the academic perspective and a panel discussion on conservation for the next 50 years.

For more information or to arrange interviews, call (416) 661-6600.



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